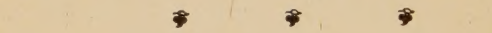
ADVENTURES in MY GARDEN and ROCK GARDEN

LOUISE BEEBE WILDER

ADVENTURES IN MY GARDEN AND ROCK GARDEN

BOOKS BY

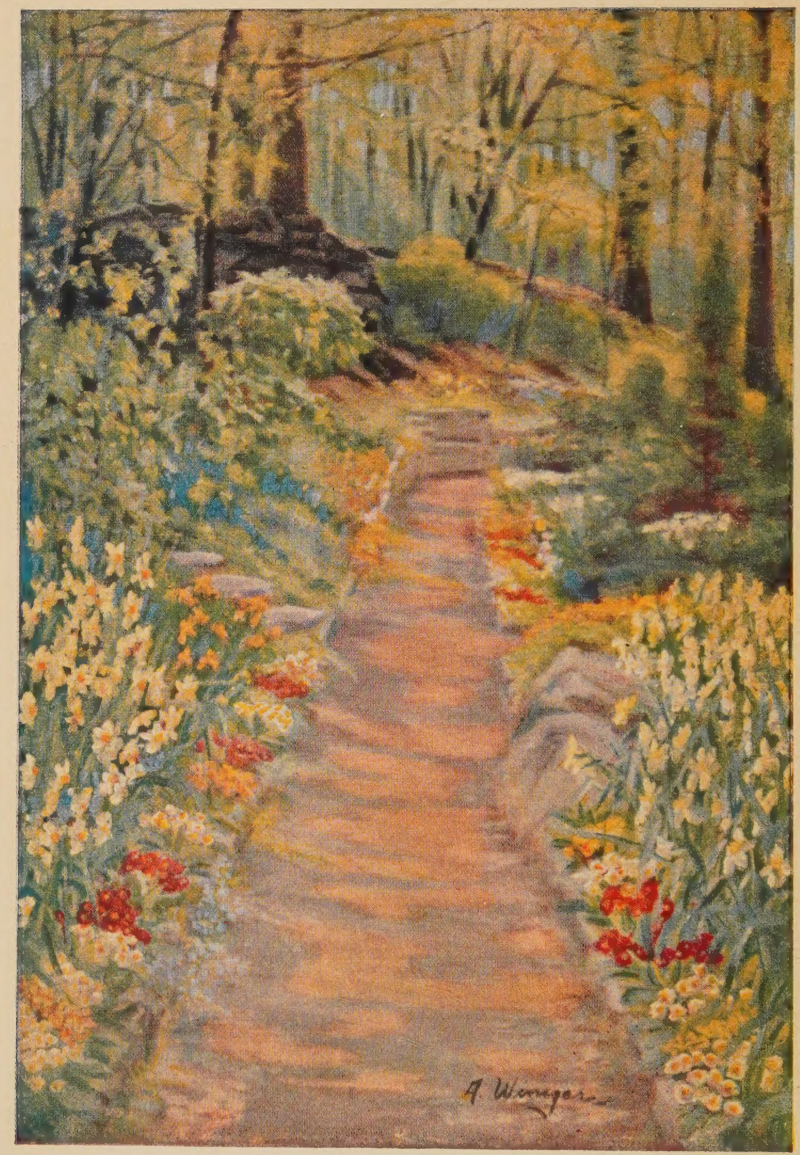
LOUISE BEEBE WILDER



ADVENTURES IN MY GARDEN AND ROCK GARDEN

COLOUR IN MY GARDEN

MY GARDEN



APRIL ALONG THE PRIMROSE PATH

(Primroses, Cowslips, Polyanthus, Daffodils, and Grape Hyacinths)

Adventures in
MY GARDEN AND ROCK GARDEN

BY

LOUISE BEEBE WILDER

"He who goes into his garden to look for spiders and cobwebs will doubtless find them; but he who goes out to seek a flower may return to his house with one blooming in his bosom"

GARDEN CITY NEW YORK
DOUBLEDAY, PAGE & COMPANY
1925

COPYRIGHT, 1923, BY
DOUBLEDAY, PAGE & COMPANY

ALL RIGHTS RESERVED

PRINTED IN THE UNITED STATES
AT
THE COUNTRY LIFE PRESS, GARDEN CITY, N. Y.

TO

CLARENCE LOWN

THIS BOOK IS GRATEFULLY DEDICATED IN
APPRECIATION OF HIS GREAT WORK AS A
PIONEER ROCK GARDENER

ACKNOWLEDGMENTS

To Mr. Leonard Barron for his patience and perseverance in securing the portraits of the small plants; to Mrs. Mattie Edwards Hewett for her care in making the broader views; to Miss Anna Winegar for lending such charming colour to my statements.

To Dr. Edgar T. Wherry for information concerning acid-soil plants.

And to these especially among the many friends who have helped in the making of my new garden and of my new book, with gifts of rare plants, generously given information, and warm encouragement: Mr. Clarence Lown, Miss Grace Sturtevant, Mrs. C. S. McKinney, Mrs. Robert C. Hill, Miss Mary Wright, of the Logan Nurseries, Mrs. Wolcott of the Wolcott Nurseries, Mrs. Fannie S. Heath, Mrs. Albert Obergfell, Mrs. Frank Chambers, Mrs. Lucius Hitchcock, Mrs. Samuel Seabury, Mr. Herbert Durand, Mr. Charles Halsey, Mr. Julien Hinckly, Mr. F. Cleveland Morgan, Mr. George Chisholm, Mr. B. Y. Morrison, Mr. Carl Purdy, Mr. D. M. Andrews.

CONTENTS

Part I

HOPES AND FULFILLMENTS

CHAPTER		PAGE
I.	A New Heaven and a New Earth	1
II.	Thoughts on Winter Green	8
III.	Going to Meet the Spring	31
IV.	In Pursuit of the Primrose	50
V.	Further Pursuit of the Primrose	68
VI.	Violets of Hill and Dale	86
VII.	A Lay of Little Bulbs	101
VIII.	Collecting Crane's-bills (Geraniums and Erodiums)	121
IX.	Poppy Magic	134
X.	By Benefit of Seeds	145
XI.	The Meek That Inherit the Earth	156

Part II

ROCK GARDEN ADVENTURES

XII.	Creating the Landscape	171
XIII.	The Soil	191
XIV.	The Plants and Their Necessities	207
XV.	Shrubs for the Rock Garden	225
XVI.	Annuals for the Rock Garden	238

Part III

APPENDIX

PAGE

Notes on Growing Rock Plants 245

Plants for Special Purposes 338

A Few Pleasant Companionships 342

Nurseries and Collectors 344

Index 347

LIST OF ILLUSTRATIONS

Colour

April along the Primrose Path . . . *Frontispiece*

FACING PAGE

Through the Rock Garden to the Little Wood . 172

Halftone

Primula japonica alba growing in a low part of the garden 36

Cowslips in late April 36

Forget-me-nots along the woodland path . . . 37

Aethionema jacunda just coming into bloom . 52

Armeria maritima Lauchiana and Alyssum serpyllifolium 52

Armeria caespitosa, the tiniest of the Thrifts . 53

Dianthus callizonus against the rock with Gypsophila fratensis below 53

A promise for the future 68

Saxifraga macnabiana, one of the best of its kind. 69

Dryas Sundermanni, a fine plant for an exposed position 84

Dwarf spruce with Polemonium humile in the foreground 84

FACING PAGE

Phlox subulata Nelsoni, a close-creeping white-flowered variety 85

Gypsophila fratensis, the best of the small Chalk-plants 85

Geranium sanguineum album, a fine plant for rock garden or border 116

Johnny-jump-ups from Germantown 116

A path through the rock garden in early May . 117

Sedum pulchellum, a delightful native of Virginia. 132

A spray of Sedum ternatum, a native species . 132

A fine new Poppy from Thibet, one of the best of its race 133

Alpine Poppies (Papaver alpinum). 133

Dicentra Eximia, a diminutive relative of the Bleeding-heart 196

Two good dwarf trees 197

Dianthus neglectus, perhaps the most charming of the Pinks 197

Arabis albida at the left—in the foreground a small plant of Genista prostrata 212

Veronica rupestris, a splendid blue-flowered plant. 213

Iris gracilipes and Androsace sarmentosa Chumbyi 213

PART I
HOPES AND FULFILLMENTS

ADVENTURES IN MY GARDEN AND ROCK GARDEN

CHAPTER I

A New Heaven and a New Earth

The pleasantest work of human industry is the improvement of something which we can call our own.

—Cowley *in a letter to* Evelyn.

IT HAS been said that a new garden is not a garden at all. And when one considers the qualities inherent in an old garden, one grown old in the service of beauty and of human delight, its amenities of shelter and shade, its glowing flower-lit stretches, its gracious softness of contour; the sense of repose, of stability, of the preserving of reverenced memories that pervades it—when one considers these things, a new garden, crude, unproved, traditionless, would seem to have no points at all in its favour.

Much of my youthful life was spent in old gardens, blossomy inclosures with generations of bloom and sweetness behind them, eloquent of long years of happy human occupancy; and no one is more alive to their charm than I; but during the past twenty years it has fallen to my lot to make three gardens on wholly unimproved ground, and I am ready to testify that

there is a deal to be said for a new garden—at least from the standpoint of the owner. It is the fair page, the fresh canvas—opportunity. It affords scope for the age-old joy of creating something—beauty we hope—out of raw materials and the stuff of our dreams.

In an established garden are luxuriant growth and a wealth of quiet interest; it surrounds us with peace and sweetness, gives us freely of itself but asks little of us in return. The new garden, on the contrary, grasps us by the arms and legs and drags us to its service, thrilling us by its need of us, at once challenging and imploring us to rescue it from its rawness, crudity, its outlaw state, and offers us by way of compensation—adventure.

And this is the secret of the charm of a new garden. In an old garden, all exquisitely cut and dried, one *may* meet with adventures; in a new garden one cannot fail to. It is in the very air, on every hand stalking one's footsteps, crossing one's path daily—and who is so ancient, so set in tediousness, so gorged with experience as not to thrill to the call of adventure, be it staged on Africa's desert sands or in a window box?

When we closed the gate on the Rockland County garden and set forth to seek a locality more nearly serving our present necessities, it seemed to me that never again could I bring to the making of a garden that freshness of anticipation, that sense of setting out upon an exciting enterprise that had made the building of the other two such joyful work. For the old garden had become indeed a "lovesome spot"; the best of my

knowledge augmented by unusual physical advantages had gone to perfecting it; it smiled and was lovely for eight months of the year, was friendly, full of interest, inviting. It had been the scene of happy work, of gratifying realization for twelve years; my children had grown up within its protecting walls. To leave all this, to start again at the very beginning, to conjure up fresh enthusiasm, new ideas, and the will to put them into effect seemed not possible. Yet once fairly away from the smiling face of that dear garden, beyond the reach of its clinging tendrils and clutching branches, with an acre of weedy, sodden pastureland beneath my feet, there returned with renewed force all the old fever to be at work, to help the earth give the best report of itself, to call into being beauty where were neglect and unloveliness. And this is happiness. In very truth are the roots of delight buried in the heart of the earth.

This new garden is now entering upon its second summer, and as I look out across its blossomy expanse this blue June day I know that we are off on a very gay adventure indeed; that excitements lie before us not dreamed of in the old garden, that rewards are here to be won that would not there have been possible; that buried in the old pasture are limitless potentialities of blessing and beauty; that the dark earth itself is thrilling to its core with its newly released power to arise in spires of Larkspur, to laugh out in Roses, to cradle soft young grass, where so lately, and for so long, rank weeds and briars fought and bickered, choking its aspirations toward higher expression.

Nor has this child of my two adult gardens turned out to be the very *little* garden that prudence—at first loudly, but with fast diminishing clamour—counselled was all that I in these parlous times should undertake —the little garden that should, so to speak, lie in the hollow of my hand, be no trouble at all to maintain. It is, as a matter of fact—and so irrational are all gardeners—considerably larger, when it comes to the area actually occupied by flowers, than the other two, and boasts terraces lined with gay herbaceous borders, a little rose garden, a quite spacious—but not spacious enough—rock garden, a tiny bit of woodland, modest shrubberies, a quiet green with a pool and flying jet of water, a housewife's border, where beneath the plum trees and currant bushes grow the animating spirits of stew and salad (Chives, Parsley, Chervil, Marjoram, Savoury, Thyme, and Tarragon), and binding it about like a blossom-sprigged ribbon, the Primrose Path—a little world of vivid interests, gay concerns, of beauty and sweetness, within the compass of an acre.

And despite the plant quarantine, despite the high cost of labour—the by-the-day man has at last become a treasure by reason of his price and scarcity—the present is a most stimulating time in which to be making a new garden in America. For all over the land is sweeping the most amazing high tide of interest in growing things; thousands upon thousands of gardens have come into being in the past ten years, acres upon acres of "earth emancipated from the commonplace." No matter how obscurely one may ply the craft, it is not

possible to be unaware of the seething, bubbling ferment that is going on beneath its seemingly placid surface, and boiling to the top in National Horticultural Societies, Plant Societies, Garden Clubs, in an increased number of horticultural publications and nurseries; in the exquisite Irises of Miss Sturtevant, Mrs. McKinney, Mr. Farr, Mr. Williamson, and others; in Mrs. Stout's gorgeous Dahlias, and those of the late Judge Marean; in such beauteous Roses as are to-day being originated in this country; in the universal interest of suburban and country dwellers in garden-making; in countless other forms of constructive activity.

And everywhere gardeners are getting out of hand and refusing to be stilled by the old bromides that have so long soothed them into acceptance of the monotonous and dull—the giant, non-stop, ruffled, crested, utterly demoralized old marvels—and demanding something new under the sun; demanding a closer view of the twinkling stars they dimly descry in the far places of the world, that they know are ashine in our own mountains, on our own plains and prairies, in our bogs and woods all across our wide country. John Muir wrote that so exuberant is the bloom in the valleys of California that if ninety-nine out of every hundred of the crowding flowers were taken away, they would still be extravagantly rich, and that still more rich and interesting is the flora of the mountains.

And besides the treasure of California there lies the great Northwest with its vast floral resources, the richly endowed prairies of Illinois and Wisconsin, untold

riches in Colorado, the Rockies, the Selkirks, the forests of Mt. Rainier, the savannas and hills of the Southern states, the woods of Maine, the Adirondacks, and countless other localities.

One of the most pressing concerns of this new garden is the getting together of a representative collection of American plants—plants from all parts of the country. Already it is well under way, and there was something very thrilling to me this spring to see great amethyst-hued Anemones from Montana and Dakota unfold as happily on the slopes of my rock garden as if it had been their mountain home; to see a collection of Colorado's wondrous Pentstemons (raised from seed) develop their arched stems of opalescent blooms; to watch the gray expanse of Malvastrum coccineum (from Western prairies) gradually take fire until it made a small conflagration on the sunny plains of the rock garden. In the past three or four years I have grown many American plants; few have proved intractable, few too tender for the New York climate—which is not gentle—and many are certainly destined to find an honoured place in the most choicely furnished gardens; they may take their place proudly beside the beauties from the Himalayas, the Pyrenees, the sunny plains of middle Europe.

At the present time it is not easy to obtain these plants of our own soil, but at the back of this book there is a list of nurseries and collectors from whom a number may be had. The National Horticultural Societies will help us also, and coöperation between the garden clubs in the various sections of the country as well.

The state botanists are often ready with their assistance, and travellers or winter and summer sojourners may bring back seed of the likely plants they see. And soon the nurseries will realize the new spirit that is animating the gardening world—the spirit of curiosity, of eagerness to make our own the best and loveliest, the desire to see American gardens take their place beside the most richly furnished and beautiful in the world—and answer the call with splendid coöperation.

And in any case, if we truly want these things they will surely come to us. No generosity is so ready as that of gardeners, no commerce so gay and friendly as that which goes on among them. No garden remains empty that would be full. Plants come to its gate by highway, footpath, and post. Strangers arrive bearing amazing treasure, persons dwelling in distant places hear of one's wants and hasten to supply them from their own store, friends divide their most cherished roots to the last thread —keep themselves poor that others may become rich.

Yes, it is without doubt a great day in which to be making a garden in America; the possibilities offered are limitless, dazzling; the company is the best in the world. If you have not yet begun, to-day is the very day. And in your new garden, let me assure you, you will see with new eyes, hear with new ears, respond with quickened pulses to the eager, urgent calls from every hand. And soon you will be saying with an old English wizard of the soil, "Don't let me forget to pray for travellers when I thank Heaven I am content to stay in my own garden. It is furnished from the ends of the earth."

CHAPTER II

Thoughts on Winter Green

There is a wind where the rose was;
Cold rain where sweet grass was;
  And clouds like sheep
  Stream o'er the steep
Grey skies where the lark was.
—Walter De La Mare.

THE presence of evergreens in the winter landscape is one of Nature's wise and consoling provisions that we are apt to take for granted. The green of winter is profoundly cheering and reassuring. To walk in the bare and silent woods and come unexpectedly on a spreading patch of Wintergreen, or the trailing branches of Ground Pine weaving an emerald pattern through the snow, is to have the spirits unaccountably lifted; a green tree in a white world focuses our eyes and our thoughts. In this winter verdure we unconsciously divine a pledge that gloom will pass and flowers and fresh young growth once more adorn the earth.

"Nature is moderate," wrote Thoreau, "and loves degrees. Winter is not all white and sere. Some trees are evergreen to cheer us, and on the forest floor our eyes do not fall on sere brown leaves alone, but some evergreen shrubs are placed there to relieve the eye.

Mountain laurel, lambkill, checkerberry, wintergreen, &c., keep up the semblance of summer still."

Thus is the garden, well planted with evergreens, a cheerful and inviting place, even in the dead of winter. The memory of summer lingers about it, encouraging us to follow its frozen paths in search of interest and refreshment; and there is always something worth going to see. The impatient buds of the broad-leaved evergreens are worth watching—one feels they may open any day—and among the conifers there is rich colour; bronze and rust and mulberry, sea-green and gray and olive; the silvery bloom of the Junipers, the dusky tones of the Yews, the steadfast green of Laurel and Box. And in the "noontide twilight" made by falling snow it is a delight to go among the evergreens and note the individual grace with which each bears its soft white burden. The Spruces carry it gaily, as if enjoying a winter sport; the Arborvitaes a trifle wearily, burdened by their finery; the Hemlocks proudly, as queens once wore their jewels; the Cypresses are little girls in filmy Confirmation gowns. Snow drapes the Cedars in an ermine mantle, and clings about the spread branches of the hoary Pines as legends cling about its name. "If the wind veer too much to the east," wrote Lowell, "you get the heavy snow that gives a true alpine slope to the boughs of your evergreens, and traces a skeleton of your elms in white against the sky."

Assuredly a winter garden need not present the dreary aspect of a stage after the actors have departed and the scenery has been pushed into the wings. There is a

wide choice of evergreen shrubs and small trees that will not burden the smallest place or prove over-large for the restricted area of the garden itself; many creepers and low bushes with persistent leaves for banks or carpeting the ground, and an enchanting selection of miniature conifers to keep green and fresh the hills and dales of the rock garden during the winter season. We are too prone to let "winter's frosty door" slam in our faces, cutting us off from companionship with the garden for many months, when we might well enjoy it right round the calendar.

But there seems little evergreen wisdom abroad in the land. In suburban neighbourhoods one commonly sees the small places devoid entirely of winter green, or burdened with the support of a dozen or more potential forest trees where there is hardly support for one when it shall have reached maturity. Foundation plantings of young Norway Spruces and Canadian Hemlocks are as common in this neighbourhood where I live as are perambulators; for there is no visible sign to warn the novice that the compact little trees he plants close about his dwelling to soften its stark newness are giants in embryo and will one day endeavour to fulfill their destiny unless cut down. No one would so mistake or misuse a sapling Oak or Elm; they are as unmistakably immature as a colt, but the Norway Spruce of six inches is as finished in appearance as ever it will be. Time will increase its height and girth but will add nothing to its dignity or its air of sophistication.

I have spent a good deal of time this winter wander-

ing about the lanes and roads of my neighbourhood looking at Suburbia's way with evergreens. Sometimes it is very quaint. One little place that I pass frequently displays twenty-seven distinct varieties of conifer on its infinitesimal front lawn. They are not long planted, for all are very small; a Blue Spruce, a golden Retinispora, a stout Mugho Pine, a Canada Hemlock, a sprawling Yew, a feathery Cupressus, a weeping something, a slim Cedar, a squat Bandaisho Pine, a depressed looking Cryptomeria—and so on. At the present time the little lawn looks not unlike a box of unwholesome bonbons; what its appearance will be when each has grown to tree's estate the mind refuses to contemplate.

One does not mean to jibe at any effort toward gaiety and beauty; but the mixed bonbon style of planting evergreens is one of the worst manifestations of our present-day gardening. Largely it is the result of the "collections" offered by some nurseries at a slightly reduced price than that asked for individual specimens. This is sure bait for the novice, who is glad to shift the burden of choice from his own shoulders, and to feel at the same time that he is "saving money." But, on the other hand, it often happens that old and intelligent gardeners—who should know better—are unable to resist the temptation to own one of every known kind of evergreen, and many a fine place is despoiled of all grace and repose in consequence.

Simple grouping of evergreens gives the most pleasure; three or five of a kind for small places, more for

larger ones, interplanted with some graceful deciduous shrub or tree for the sake of contrast. The truth of this we may see exemplified any time in our walks and drives. How satisfying is a hillside set with pointed Cedars, but how utterly devoid of all attraction would it be if planted by the one-of-a-kind method so often favoured by man. Memory goes back to a stretch of mountain road, once very familiar to me, where Dogwoods and Hemlocks grew closely on either hand. In winter the gray budded twigs and branches gleamed against the dark verdure with lovely effect, and when in spring the white-clothed branches of the Dogwood rested among the feathery Hemlock boughs one guessed at fairyland.

Upon the lawn of a little place one well-grown Hemlock tree and one Dogwood or gay Japanese Crabapple would give infinitely more pleasure than a dozen expensive midgets, each striving to make its personality felt above that of its neighbour.

Near here, in a beautiful garden, is a grouping of Magnolia stellata against Blue Spruces that gives me pleasure at all seasons. I have been to look at it more than once this winter, enjoying the effect of the dark branches and velvet buds against the charming colour of the trees. Last spring late frosts spoiled the display of blossoms, but I trust there will be no disaster this year and that I shall be vouchsafed the pleasure of watching the waxen stars shine out against the blue-green background.

In Mrs. F. A. Constable's garden on Orienta Point,

where evergreens are used with rare taste and discrimination, I learned the enchanting effect of Pink Dogwoods against the sea-green softness of Chamaecyparis pisifera squarrosa. The latter is a beautiful evergreen well suited to grow in gardens or on small places, as is the Chinese Juniper, also sea-green in colour and most lovely grouped with slender shrubs such as the Winter Honeysuckle, Lonicera fragrantissima, or the pink-flowered Almonds. My Day-book is full of notes of such pleasant associations, and one day I hope to see many of them repeated on my own new plot in the interest of lasting beauty and a reposeful scene.

Yews have not until quite lately been largely used in American gardens because of their uncertain hardiness. The English Yew (Taxus baccata) is not reliable in New England; but a bulletin from the Arnold Arboretum gives T. b. repandens as entirely hardy in Massachusetts. The introduction of the Japanese Yew (T. cuspidata) and its varieties, however, makes possible the employment of these fine dark evergreens in much colder localities. The Japanese Yew is very hardy and may yet be the means of creating in American gardens that delightful special atmosphere and quaint charm of old English, Scotch, and Welsh gardens that are certainly derived from the fine Yew hedges and—dare I say it?—from the delightful birds and beasts carved of its facile green.

Yews are rather sombre company in winter, showing black and shadowy against the snow, but no evergreen, unless it be Box, so richly reveals and enhances the

fragile effects of the spring. Tulips take an added brilliance from its shining surfaces and the delicate flowery branches of the young year appear the more lightly gay and tender in contrast with its dusky masses. In our country Yews are the better and safer for a partially shaded position. They suffer under our blighting summer suns, and perish of the cruel freezing and thawing to which they are subjected when planted where the sun shines full upon them. The Japanese Yew is less sensitive to these conditions than the English, but both are grateful for a little shelter.

Our own Yew (T. canadensis) is a valuable plant for shaded places, where the soil is not too dry. It is not as dark and shining as the other forms and its "needles" are not so close-set, but it is very hardy and its low-spreading growth makes it useful for many situations. Its fault is that in winter it turns a little rusty while other Yews retain their tone at all seasons. It grows from one to four feet high, its habit rather open and wide-spreading, and at midsummer it displays a few red translucent berries, worn like jewels on its dusky branches.

When every branch of the Yew is tipped with the pea-green colour of its new growth the aspect of the tree is in singular contrast to its usual soberness of demeanour; quite frivolous it appears, and young; even this grave tree, it seems, has its moments of relaxation. The erect forms of Taxus baccata are invaluable where a formal effect is sought, or for accent, and all the spreading varieties lend themselves admirably to covering

banks, for the foreground of shrubbery plantings, or for foundation planting. The beautiful dark columnar Irish Yew, T. baccata fastigiata, would probably not be hardy north of Washington, D. C.

The Yew, in the once so popular flower symbolism, signifies longevity, and it is rather curious in this connection that it has been since ancient times the tree most frequently planted over graves. One sees huge venerable Yew trees in all the old churchyards of England, brooding sombrely over the quiet dead. Some of these are estimated as being more than two thousand years old and are more than fifty feet in height. Here is an ingenuous explanation for their almost universal presence in churchyards: "The yew was the wood from which ancient bows and arrows were made, and that it might be always ready at hand, it was planted in every burial ground."

For the common Arborvitae (Thuja occidentalis), so widely planted, I have no great admiration. It rusts badly in winter, and seems not entirely to regain its tone during the summer. Its green is never definite or convincing; there is always a tinge of yellow marring it, and for a yellow evergreen I have no use unless it be to point a moral or adorn a tale. My taste is not widely shared, however; one sees these "golden" forms in every collection. On one place that I passed last summer while motoring, the green varieties had apparently been excluded altogether, the golden forms being massed about the gate and as far up the driveway as my gaze could penetrate. And when an evergreen

is not only yellow but weeps in a dejected, stringy way, as does Retinispora filifera aurea, I think we are come to a strange pass in our admirations and enjoyments. I can take no pleasure in these sallow lamentations. (This tree is quite pretty when very small—as a baby's grief may be delicious.)

The common Arborvitae has grace and symmetry when young, but grows leggy with the years. Rather better is the variety fastigiata, more compact and dense of growth and of a narrow columnar habit. This is a good subject to plant along the flat façade of a building at regular intervals, or for use in formal surroundings. There are a number of other Arborvitaes suitable for planting on small places and on rock gardens. These I have listed in the chapter on Shrubs for the Rock Garden. Among the White Cedars (Chamaecyparis or Cupressus) and the Retinisporas, whose nomenclature is confusingly interchangeable, are many charming trees and shrubs of low or moderate stature. None is more lovely than Chamaecyparis pisifera squarrosa—mentioned before—with dense soft foliage, sea-green in colour. And there is another, C. p. argentea, whose feathery foliage is tipped with silver. Both these trees are delightful in the winter garden, giving a touch of unusual colour.* The rich olive-green of Retinispora obtusa is also very fine and the arrangement of its foliage distinct and beautiful.

Junipers are not so rich in winter colour as are some

*Note—Planted in partial shade they are less apt to rust.

of their sister conifers, but I love their rough-finished homespun sort of foliage. It seems made to wear well and has the beauty that so often belongs to sturdy, durable things. Indeed, I think that the Junipers are my most beloved among evergreens, though the Pines press them hard. There is great variety among them and they are ideal for the small place, for none grow quickly to a very great size.

The common Red Cedar (Juniperus virginiana) is a familiar and beloved figure of our eastern countryside. How often one sees it climbing rocky hillsides to windy uplands where it congregates closely, its slim proportions supremely decorative; a gypsy tree widely roving, seizing the ground that the cow and the plow have deserted and driving a hard bargain with any who would share it; happier far in freedom, with stones for a bed and bleak wind for a bedfellow, than in the most luxurious captivity. Once Cedars were used for hedges, and how miserable they must have been—made to march in a row, shoulder to shoulder, each with a countenance like unto that of his brother. Small wonder they were not a success and had to be abandoned for such usage. Nor have I ever seen them looking happy and robust in nursery rows. Always they seem to mourn and to remember. They are among the wild things that it is not easy to tame. I have brought in some very little ones from the wild and planted them at the edge of my tiny wood in the hope that, having caught them so young, they will not pine and languish for the ways of their own people.

But though the Red Cedar is so "incorrigibly wild" others of its tribe are not averse to the ways of civilization. The blue Virginia Cedar is a slender graceful tree of lovely colour, and J. V. Schotti is also a most desirable kind. J. chinensis is one of the finest of all; it has the lovely blue-green bloom that characterizes so many of the Junipers, and a dense upright habit that makes it a striking figure wherever planted. J. c. Pfitzeriana is another invaluable form and keeps its rich green colour throughout the winter. I like to borrow Thoreau's sharp eyes when looking at many things. Gazing deep down into the foliage of the dwarf Juniper he notes how its surging flakes and leaflets, green or silver, reflect the light. This we clearly see in J. Sabina and its grayer variety, tamarisicifolia, and to a lesser degree in J. communis and its forms. This silver reflection makes the Junipers particularly attractive in the winter garden. Most of the Junipers like a partially shaded situation, but they will better put up with dryer, poorer conditions than will many more fastidious trees.

Unlike the Cedar, the Hemlock, though a wild tree, knowing the ways of forests and the freedom of mountain slopes, is willing enough to hedge the human habitation round, and endures the indignity of clipping with equanimity. Indeed, it is the most satisfactory evergreen for hedges in this country—hardy, unexacting, and easily transplanted. A well-grown tree of Tsuga canadensis is a source of unfailing pleasure. It is the evergreen indigenous to this part of the country, and in

the wood adjoining us are many fine specimens, making it a pleasant place to walk all through the winter. I see them from my west windows, dark against the setting sun, bright green in the clear light of day, or softly robed in snow; always a reason for lingering at the window.

Some day, probably before long, a house will arise among these trees, and how I hope they may be spared. That is the sad part of seeing a neighbourhood settled, so many trees are sacrificed, and often when it is not necessary—when a little thought would have saved them. The desire on the part of owners to surround themselves with smug lawn sounds the knell of many a noble copse. I know of one place near here where many clumps of white Birches, like gossiping dryads, were cut down and acid poured on the living roots, that an expressionless green carpet might extend smoothly around the dwelling. Such sad vandalism is happily growing less frequent; there is a much greater and steadily increasing appreciation of Nature and her gifts among our people than there was a little while ago—but I shall always regret those little slender Birches.

Pines are the noblest of all evergreens, beautiful and picturesque at all ages and seasons, sturdy and enduring. Thoreau considered the Pine the richest of trees. "It stands like a great moss, a luxuriant mildew . . . that the earth produces without effort." Sara Shafer, in "A White Paper Garden," writes with sympathetic understanding of the Pines:

Buffeted by winds, pruned by storms, scarred by lightnings, it may be, or worn by neglect or cruelty, how full of meaning the pines become! No tree, unless it be an oak, becomes as human as does a pine which has lived for generations in the intimate companionship of man. When the trunks have grown gray and resinous, and the boughs are mute witnesses to the struggles of the soul of the tree, they take on the same beauty which shines in the faces of men and women who have grown old in the quest of high ideals, and in the service of noble endeavours.

I have ventured three Austrian Pines on my place, planting against them some white Birches, the ground beneath these to be set with clumps of Daffodils—there is no lovelier association for a spring picture than Daffodils beneath slim white Birches—and in the winter the fragile branches show pleasantly against the rich green of the Pines. There are numerous dwarf forms for use where space is a consideration, and these have the same appearance of sturdy strength that characterizes their nobler relatives. All are difficult to transplant and unless they may be brought from a nursery by motor with a large ball of earth, it is best to buy small specimens.

If in health, Pines keep their rich colour throughout the winter and are most recreating to look upon. Spruces, too, are a good green in winter, but to me they seem a stiff and prideful tree, always an ornament but not always a friend.

From both the Oriental Spruce and the Norway Spruce are derived numerous dwarf forms extremely useful where space is limited, some small enough for

use in the rock garden. Many of these little trees possess a very decided charm that in the rock garden is fully displayed, whereas in the dense mass plantings about the foundations of dwellings to which they are usually condemned they appear merely stout and stodgy.

Spruces are hardy and vigorous and may be planted at almost any time when new growth is not in progress. Their preference is for good soil that is a trifle sandy, but they are not demanding. They suffer much, however, during the first year after planting if the weather be dry. Often their branchlets droop dejectedly in times of drought, and if we are wise we will heed this eloquent appeal for water, and spray the tops and saturate the ground about them frequently when the rainfall is not sufficient to keep them refreshed.

No winter green is so satisfying as that of Box; none has the appearance of being so richly alive. The bright lustre of the small leaves is never dimmed and old bushes are fine in line and mass. The pungent scent of the leaves is to me highly refreshing and stimulating, but all do not like it. Near here is a cottage half surrounded by a fine old Boxwood hedge. When the woman who dwells therein was felicitated upon her possession, she shook her head and said, "It's gloomy, and I don't like the smell all through the day and the night." Seemingly to many persons there is something disquieting in the scent of Box. It is said to stir the memory as does no other fragrance, and it is also reputed to exert a hypnotic influence. Doctor Holmes

called it "the fragrance of eternity . . . one of the odours that carries us out of time into the abyss of the unbeginning past." And nearly all references to it in prose or poetry carry a tinge of sadness or bitterness.

Remote and yet distinct the scent,
The sole thing of the kind,
As though one spoke a word half meant
That left a sting behind.

Fine old Boxwood is a priceless possession, and those so fortunate as to possess it should spare no care or attention to keep it in health. In our Northern States it goes in constant fear of its life, yet there are many splendid examples to be found in old New England gardens. It thrives in any well-drained, fairly rich soil, but it is safest in a shaded situation, or with a northern exposure. No clipping should be done in spring until after all danger of frost is past, for newly shorn Box is as sensitive to cold as a person who has recently shed his winter flannels, and it frequently happens that fine old hedges are killed outright as a result of a few frosty nights following their shearing.

Snow is a menace as well, and no time should be lost in relieving the bushes of its weight, even, if possible, before the storm has ceased. The white blanket settles heavily on the dense masses of foliage and close-set branches, and if not removed quickly the bushes must be cruelly torn and broken. A not unpleasant winter sport consists in going about the garden paths with a broom, brushing the snow from the low evergreens

before it solidifies into crushing, adhesive masses. Other than this Box requires very little attention, but a yearly top-dressing of old manure or stuff from a compost heap is a consideration richly repaid.

Boxwood grows very slowly, and in this age when immediate effect is more sought than lasting beauty, it is not planted so freely as once it was. But even small specimens confer upon the garden a certain atmosphere of seemly grace, whether clipped to some quaint or formal shape, or allowed to grow freely; and one could bequeath nothing more beautiful to the future.

Ilex crenata, sometimes miscalled Japanese Box, in reality Japanese Holly, has something of the appearance of true Box, and is a most desirable shrub in the garden. Its growth is more open and spreading than that of Box and its small dark leaves are distinctly less bright and lively looking, nor has it the pungent scent. It grows very slowly to a height of fifteen or twenty feet, and is hardy as far north as Massachusetts. Ilex latifolia is a most handsome form, but would probably not be reliable north of Washington, D. C. Nor is the beautiful English Holly, Ilex Aquifolium, safe in this country save in the Middle or Southern states. But where it may be used it is unrivalled for winter decoration out of doors. I always enjoy Evelyn's prideful description of his famous Holly hedge at Says Court, "four hundred feet in length, nine feet high, and five in diameter . . . glittering with its armed and varnished leaves, and blushing with its natural coral—shorn and fashioned into columns and pilasters, archi-

tecturally shaped." Probably our native Holly, Ilex opaca, wild throughout the Middle Atlantic and Southern states, could not be induced to such magnificent proportions, but it is worthy a much greater use in gardens than is generally accorded it. Its growth is deliberate, which is against it in these impatient days, and its green is a trifle less lustrous than that of the English Holly; nevertheless, for those seeking winter cheer for their gardens it has value.

The best time to plant Hollies is in late April or May; at this time the roots are in a state of active growth and quickly make their way into the new soil. They are not fastidious as to soil, liking a good loam, but they want a position where the sun strikes seldom on their leaves. They resent disturbance, so it is best to start with a little patience and small specimens.

Another fine American Ilex, most unaccountably neglected, is the evergreen Winterberry, I. glabra, which has a wide range throughout the Eastern coastal states. "Its compact habit," says a report from the Arboretum, "and its shining persistent leaves make it one of the best of the broad-leaved evergreens that can be grown in this climate." It grows finally to a height of five or six feet—slender, bushy, and spreading—and in winter the leaves assume fine tones of plum and bronze which well set off its clusters of dark berries. In Europe this shrub has long been accorded recognition, but you may search American catalogues in vain for it. I know of only three nurserymen who list it, and of these one could not deliver it upon order.

THOUGHTS ON WINTER GREEN

No one would wish to forego the pleasure of growing the many beautiful exotic evergreens that are within our reach, and while our own perhaps are less spectacular in appearance, it is a broader use of these natives, inured to our climatic extremes and perversities, that will clothe our gardens in a sturdier fabric and endow them with a greater sense of harmony and reposefulness.

But Rhododendrons, the most commonly used of our broad-leaved evergreens, are poor winter company. The first hint of cold weather causes them to shrink and withdraw; their leaves droop and complain; one divines their protests against each drop of the mercury. Instinctively we hurry past them in our winter walks lest we be detained to hear groans and repinings. Laurel, on the other hand, is a most splendid winter green, fresh and shining always, and its "calico" blossoms are among the loveliest of our wild flowers. Laurel takes readily enough to cultivation if given a soil of some acidity (see Chapter 13), but it is best to start with small specimens rather than to try to reëstablish old plants that have left adaptability behind with other attributes of youth.

Invaluable also for cheer during the winter season are Leucothoe Catesbaei and Pieris (Andromeda) floribunda. Both these have lustrous leaves, those of Leucothoe a rich dark red during the winter and racemes of flower buds that begin to swell soon after the turn of the year, conveying a pleasant sense of activity and promise to one seeking a living sign.

Nor should two small evergreens be forgotten: the little Sand Myrtle and the Leatherleaf. The first, Leiophyllum buxifolium, makes its home chiefly in the sandy pine barrens of New Jersey and farther south. Its leaves are small and shining, and in the spring it covers its twiggy circumference with little fluffy white blossoms with conspicuous anthers. It is fine where a low shrub is required and, like the Leatherleaf (Chamaedaphne calyculata),* requires to be grown in considerable numbers to show to advantage. The leaves of the latter turn a bit rusty in winter, but its flower buds, whose suggestive arrangement along the curving branches have earned for it the curious local name of False-teeth-bush, are full of interest and promise.

The western Mahonias (Berberis), too, belong in every collection of winter greens. There are some fine specimens of Mahonia Aquifolium near here and my winter walks take me frequently to look at them. The leaves are much like those of the true Holly, and turn a lustrous bronze colour during the cold weather. In Mr. Andrews's interesting catalogue he offers Mahonia repens, the Oregon Grape, which he describes as an evergreen, creeping shrub only a few inches high, extending by underground stems. This Rocky Mountain form is said to be hardier than its taller relative of the Northwest, and, as we are not too rich in evergreen coverings for the ground beneath trees and elsewhere,

*Cassandra calyculata.

should prove very valuable. Both the Mahonias enjoy shade and both bear fragrant yellow flowers, in terminal clusters, very early in the spring.

Of evergreen ground-covers none seems to me to compare in usefulness or beauty with the little Periwinkle. In my heart as in my garden it holds its own against all comers, and I am inclined to resent the steady advance to favour of the ubiquitous Pachysandra terminalis, which now covers much ground once adorned by the blue-eyed Vinca.

Pachysandra might be termed an estimable plant, but it quite lacks the artless charm and grace and, most of all, the dear blue eyes of Chaucer's "freshe pervincke riche of hew." This little plant has for so long softened the angularities of our gardening, crept kindly over our mistakes and failures, cheered the bleak winter season with its shining verdure, and given us back glance for glance of hope and encouragement with the first spring days, that in common gratitude we should not banish it for the sake of any rank newcomer.

The Periwinkle trails through garden history from its earliest beginnings; ancient plant lists name it, early poetry sings of it tenderly, legends cling about it, and herbalists extol its virtues. The Hon. Mrs. Evelyn Cecil, in "A History of Gardening in England," refers to an old ballad in which a noble lady is called "the parwenke of prowess," the Periwinkle being used to express excellence in the same way as the Pink in Elizabethan times—the pink of courtesy. She gives these lines from an old manuscript of the 14th century

to show how long ago it won its pretty and appropriate name of Joy-of-the-Ground:

> Parwynke is an erbe grene of colour,
> In tyme of May he beryth blo flour.
>
> Ye lef is thicke schinede and styf.
> As is ye grene Iwy leef
>
> Vnch brod and nerhand rownde
> Men calle it ye joy of grownde.

It has also a place in the earliest known work on gardening, a treatise in verse by Mayster Ion Gardener, called "The Feate of Gardening" (1440 or earlier) and we know that it was growing in gardens long before this.

I would not banish this old friend because of its years of kindly association with all the gardeners that have preceded us, but one does not keep it for this alone. There is, in truth, nothing that really fills its place as an evergreen ground-cover. In old-fashioned gardens one frequently sees it employed as an edging to beds and borders, its long branches cut back each spring, and very pretty it is for this purpose, but I like it best when allowed to roam. It makes a splendid covering for shaded beds where spring bulbs are grown—Daffodils, Scillas, Snowdrops, Crocuses, appearing at their best above the carpet of lustrous green and quiet blue, which serves as well to cover their somewhat untidy retirement. Sometimes a mild spell in February will tempt a few blossoms forth, and surprised indeed must be the Snowdrops when they push through to find these grave blue eyes regarding them.

The white Vinca I had long sought; it seems very scarce, but I have it now through the kindness of a friend, and await its blossoming with pleasure. I suspect that the blue and the white kinds should not be planted in company, for the stronger-growing blue would certainly eventually overcome the slighter white form. This may account for its scarcity.

English Ivy provides a splendid evergreen covering beneath trees or for north-facing walls of brick or stone, where it is spared the attentions of the winter sun which does it cruel harm. One must be patient with Ivy, for it takes a season or two to get under way, but once it starts it climbs with fair rapidity and makes a far fairer covering than any of the quicker-growing plants too often used in its place. Ivy likes a rich loamy soil, and for the first season or two a covering of branches or litter during cold weather.

Evonymus radicans and its various forms are also invaluable evergreen climbers for walls of brick or stone. They, too, are rather slow in getting a start, but where growing freely the effect of the small lustrous leaves and close-clinging slender stems is extremely fine. They do not reach so high as Ivy, but are good for garden walls, or for trailing over stone steps or balustrades, or even for dwellings where a high climber is not desired. They like a sheltered position in partial shade or full sun, and I think may be said to be reliably hardy, though one occasionally hears of well-established plants being winter-killed.

The winter greens touched upon in this rather long

chapter are not by any means all that are to be had, but they are more than enough to keep a garden very fresh and cheerful until the flowers come again. It is pleasant to grow them not scattered—one here, one there—but well massed, in order that whole areas shall be green enough to give one a sense of being surrounded by living, growing plants though the ground be covered with snow. Here I am collecting them on either side of the path described in the next chapter, and though it is all so new and the trees and shrubs still small, this green walk has been a source of much enjoyment to me during the present snowy winter, speeding it on its way so cheerfully that already, before it seems possible, I am aware that

> The pine boughs are singing
> Old songs with a new gladness;

And spring is at hand!

CHAPTER III

Going to Meet the Spring

Eyes of some men travel far
For the finding of a star;
  Up and down the heavens they go,
Men that keep a mighty rout!

—Wordsworth.

THERE comes a time soon after the turn of the year when it seems to the gardener, and to all, perhaps, who love the green outdoors, that he can no longer await the spring; when winter drags along intolerably, snow following snow with grim monotony until his very soul cries for a sight of the bare, moist earth as a voyager long at sea pines for the first glimpse of land. Nor is his impatience stilled by those soft days that now and again through February and March sunder the rock-ribbed ice and enshrouding gloom and lie for a golden moment tender and smiling at our doors. Rather is it by these quickened and intensified, and his walks along the frozen garden paths become inspired by hope and anticipation, his senses strained, his eyes wide to catch the least gesture of reassurance, the first intimation of a changing order.

And how sweet is that day when he finds that a visitor has crept timidly about his garden ways, leaving her fingerprints in Snowdrops in the warm hollows and bits of her pale gown caught on the briars and bushes; when

a bluebird's note slides down the nipping breeze and a thousand inquisitive noses are discovered sniffing through the brown earth; and out in the world beyond the garden Nature has prodded her Hepaticas in the sheltered corners, coloured her twigs, and bedecked her mosses in honour of the timorous guest.

Spring begins for us when we find the first flower—the croaking calendar to the contrary notwithstanding; then why do we sit so long over the fire contriving flowers and verdure with paper and pen, awaiting the lazy May Tulips to call us forth, when grudging February might be brought to yield a flower, and March a nosegay, and April will gladly wind a gay garland through all her tearful days?

It has long been my dream to inspire my cold New York garden to blossom right around the calendar—and this is how near I have come to its realization: On the eighth of February, 1922, Snowdrops were in bloom on a sheltered southern slope; on the twelfth, gold stars twinkled on the Naked Jasmine; between the first of March and the fifteenth appeared in the order of their naming, Daphne Mezereum, Periwinkle in a warm nook, Winter Aconite, Viola papilio, several kinds of Crocuses (Imperati, Tomassinianus, and Sieberi), Twin Honeysuckle, and a few English Primroses in a sheltered hollow, and before the bold month had blustered and blundered out of the path of April's shy approach, a dozen more were gleaming in odd corners where the sun could shine encouragingly upon them. On the twenty-first of December I gathered the last nosegay of the year,

and how precious it seemed, that handful of blossoms, snatched from the clutch of winter—a few Primroses, a cluster of summer Wallflowers, brown and fragrant, a dozen or more Johnny-jump-ups, still jaunty and alert. This leaves but one flowerless month in the new garden, though I am not yet alive to all its kindly and ingratiating qualities, and I have high hopes of winning a blossom from tight-fisted January, should Winter doze and the wind slip up from the south.

An exceptional year, it may be argued, and this is doubtless true, for to-day, as I write this chapter, is the first of March, 1923, and the ground has not once been visible since Christmas. But yesterday I saw in a friend's garden, where the snow had worn thin on a warm bank, the pointed buds of Snowdrops thrust bravely through, and noted that the branches of my Mezereon were threaded with buds fat almost to bursting. And exceptional seasons are not, after all, very rare, and it is well to be prepared to make the most of them when they are vouchsafed us.

We are, on the whole, generally neglectful of our early spring gardens, leaving them brown and bare, and concentrating our efforts, rather, on the easy glories of May and the full summer. But this is to let golden opportunity slip through our fingers—to miss the first faint notes of the spring song which are so fine and sweet.

In the old garden we grew many early-flowering plants and April, there, was almost as brightly caparisoned as May, but the most forward of the shrubs and

small trees were lacking, for want of space, and some of these open their blossoms while Winter yet holds unshaken sway over the earth. And when we came to plan the new garden it seemed to me that a feature whence might flow many joys could be made of a walk along which we could go to meet the Spring, where we should be aware of her first shy glances and see the prints left by her straying feet in sheltered places.

Accordingly a path, following the confines of the place, was laid out, making its way through sunshine and beneath trees, through the rock garden, the tiny wood, the pergola, and so around again. It is sheltered on the east by a bank rising to the Lane and trees, on the north by tall trees and a wall, so I am thinking that here we may look for very early manifestations indeed. On either side of this path we are gathering the most precipitate and daring of the small flowering trees and shrubs, as well as many early flowering plants, and the precious small bulbs that are the jewels of the spring. Here, also, as told in the preceding chapter, is being placed much winter green, and it is planned ultimately to add groups of Hardy Chrysanthemums and Japanese Anemones, patches of Autumn Crocuses, and the best and brightest of the berry-bearing shrubs. Already, though only partly furnished, this path offers a pleasant détour round the humdrum road of everyday, and he who follows it may find relief for snow-weary eyes in winter, a blossom for his eagerness in February and March, and a bit of colour and sparkle up to the very last moment in the autumn.

I like to give names to the places I am fond of, seeming thus to establish a more intimate relationship with them—to lay a special claim upon them, and so, in the beginning, we called this new walk the Spring Way. But presently, because of the Primroses gathering along its verges in ever-increasing numbers, it came to be called the Primrose Path, and as there were but two months of last year when Primroses of some sort were not to be found blossoming there, it seems both fair and fitting. Following are some of the plants that grow along this Primrose Path.

Snowdrops have ever been with me the very first flowers of the year when given a warm and sheltered position, blossoming often through ice and snow and seldom letting February pass without making a little display. I have never possessed a Christmas Rose, so cannot say if these be more forward in breaking the winter silence; but the Naked Jasmine (Jasminum nudiflorum) is often as early, its slender bright green shoots breaking into little gold stars—like smiles of gladness—at the first hint of mildness in the air. This is a slender, rampant thing, sending out long, wand-like shoots that may be trained to a wall to a height of six or eight feet or allowed to scramble down a bank and over stones; or kept cut back so that a little shrub is formed, very pretty and useful for clothing the bare limbs of the taller-growing among its kind. In "Colour in My Garden," Miss Winegar's painting shows the Naked Jasmine trained against a south wall. The picture was painted on March fifth, after the little

shrub had flowered throughout February owing to unusual mildness, and the display of flowers is not so fine as it would have been had consistently cold weather held its eagerness in check for a final burst of bloom.

It is said that the Asiatic Witch Hazels shake out their silk-floss blossoms at even an earlier date, and all winter I have watched expectantly the buds on the little trees that spread their branches over the heads of my Snowdrops in the hope that I might find a few blossoms clinging to the naked branches; but the trees are discouragingly small, and there has been no weather at all of a kind to tempt a flower forth.

These winter-flowering Witch Hazels may be seen at the New York Botanical Garden, at the Arnold Arboretum, and doubtless at other public parks and gardens, by those whose eagerness takes them abroad early in search of spring promise; but few nurseries offer them and in consequence they are little known in private gardens. Hamamelis mollis is said to be the finest, forming an open shrub finally eight or ten feet tall along whose branches any time in February may appear fragrant old-gold blossoms set in claret-coloured calyces that last long in perfection and are not injured by cold. H. japonica and H. arborea are likewise desirable where there is room, particularly as the three are said to bloom in succession. A few years ago a winter-blooming Witch Hazel was discovered growing along streams in Missouri, Arkansas, and Louisiana, and named H. vernalis. Mr. E. H. Wilson writes that "small plants flowered in 1913 at the Arboretum on January thir-

Primula japonica alba, growing in a low part of the garden

Cowslips in late April

FORGET-ME-NOTS ALONG THE WOODLAND PATH

These self-sow, appearing year after year in ever increasing numbers

teenth, a little in advance of its Asiatic relatives." He says further that though the fragrant blossoms are smaller, they are more freely produced than by any other species. This is quite exciting news, for if the shrub will flower at the Arboretum in January surely it will do no less for me, and it may very possibly supply the missing blossom in my garland of the year. Mr. Hicks of Westbury, L. I., is the only nurseryman known to me who can supply this treasure. I secured a fine stocky little specimen, set it in a comfortable, dampish spot, and now await its initial performance with impatience.

Beneath the Witch Hazel trees—still so small—we have scattered bulbs of Snowdrops, Scillas, and the rash little Crocus Imperati, with Winter Aconite and many plants of the sweet white early Violet, Viola blanda, and Hepaticas, carefully collected in the blue tones, in the hope that on some winter day not too far distant we may be surprised by a winter garden picture of real gaiety and colour. Near by stands the Mezereon (Daphne Mezereum), a little shrub which may be counted upon to blossom blithely while yet Winter makes a frowning face. All through the cold weather its stiff upright shoots were encrusted with little buds, and so eager and quick are these that a mild spell at any time will lure them forth—at first a few here, a few there, and then with a rush of pinky-lilac colour all up and down the leafless stems. The white-flowered variety is not quite so pretty, but it shares the delicate yet stirring fragrance which, borne to us on the wings

of a sharp breeze, is often the first intelligence we receive of the flowering of the Mezereon.

And how good are these fragrances of the early spring —first that of the earth itself when the snow has withdrawn and left it bare to the sun and it seems to breathe deeply, sending forth waves of damp, pungent sweetness that we inhale with a sense of renewal and thanksgiving. And gradually to the breath of the earth is added the scent of the earliest flowers—Snowdrop, Daffodil, Daphne, spicy Currant, Hyacinth, Violet, and the fragile emanations of the white-clothed Cherry trees; the redolence of quick-scented leaves returning to life—Bergamot, Lavender, Marjoram, Sweet Fern, and always the Sweet Briar, whose poignant tang is yielded more readily to the rain than to the sun.

A little shrub that adds a fine scent to the early bouquet has recently come to us out of Korea, and seems not to be very well known—Viburnum Carlesi. Not only is its fragrance delicious, but it bears delightful heads of Bouvardia-like flowers, pinkish-orange in the bud, palest blush at the full, with a pearl-like lustre. It is a fine plant for a sunny wall where it flowers very early, pouring its scent out upon the cool air for a considerable distance round about it. It is also a good shrub for a fairly large rock garden.

Three of our native shrubs flower generally before April has spread her diaphanous skirts across the world —Pussy Willow, Shadblow, and Spicebush. These three, though they are unrivalled in giving a lift to the spirits when the long winter has brought them low, are

not given a fair measure of consideration. Pussy Willow (Salix discolor) is seldom invited into gardens, though the soft gray catkins are probably responsible for more spring thrills than even the song of the bluebird or the strange vespers of the Hylas. It is an unexacting guest, too, not at all set in the matter of damp copses, growing cheerfully in any dull corner; and its green in summer is as pleasant as its "pussies" are exciting in the spring. One bush of it planted round about with Snowdrops occupies little actual space, but when they blossom amidst the cold and storms they seem to fill the world with rejoicing. One swallow may not make spring, but a Pussy Willow bush with Snowdrops at its feet comes very near it.

Even more neglected is one of the loveliest of flowering trees—the Shadblow (Amelanchier canadensis). The Pussy Willow and the Trailing Arbutus are hawked about the city streets in spring, and so receive a meed of appreciation and do their bit toward heartening a weary world. But the Shadblow is too fragile for transportation, and speeding motorists pass too quickly along the country roads to note its mist-like flowering among the dark trunks of woodland trees.

It is much rarer in gardens than many a sulky exotic, and many nurseries do not carry it, though it is a common woodland tree from Newfoundland to Florida and Louisiana and west to Ontario and Montana. One nurseryman told me last spring that he could not get it, though it was at that moment flowering by the roadside within a hundred yards of his nursery.

It is a small, slender tree that in March or early April, according to the mood of the weather, decks its dark branches in pendulous racemes of fragile white flowers so completely as almost to hide the framework of the tree, and at a little distance we seem to see wreaths of pearly mist lingering in the hollows and among the dark trunks of the still naked wood. Here, along the Primrose Path I am planting it at intervals with Daffodils to blossom in its pale shadow, and blue Hepaticas in patches near by, and hope for a picture to hold the eye of the most indifferent. A lower growing, more shrublike form seems commoner in nurseries. This is A. botryapium, found in low damp places in our Eastern woods. It is less fragile and ethereal in appearance when in bloom and its young leaves are soft and woolly; it is lovely and desirable also.

At about the same time as the Shadblow blossoms the Spicebush, a familiar but carelessly regarded ornament of our woods and roadsides. It is a wayward, twiggy shrub that bends gracefully over a pool or pleasantly illumines a dim corner, and appears, when set all over with its funny little tarnished gold rosettes, quite wildly festive. It is the easiest and kindliest thing in the world to grow, and any one may have it in any position. Its leaves give forth an agreeable aromatic scent when crushed. In a low damp corner pale-coloured English Primroses are the best companions for it, both venturing their blossoms with a careless rashness that finds an echo in our own spring-stirred souls. There is the Rhodora, too, of our Northern swamps, that fills

the air with purple butterflies soon after the snow disappears. "There is nothing else," wrote Thomas Wentworth Higginson, "in which the change from nakedness to beauty is so sudden, and when you bring home the great mass of blossoms, they appear all ready to flutter away again and leave you disenchanted." The Rhodora will grow in gardens in rich soil and sunshine, and if you plant between the litt e bushes clumps of the Virginia Cowslip (Mertensia virginica), you will have a picture worth going far to see on a gray April day.

Prunus is a host of spring enchantments in itself—Cherries, Plums, Peaches. What have we, for instance, more lovely and appealing than the weeping Japanese Cherry, whose pendulous shoots are lost in the silvery mists of its blossoming so early in April? We call our little tree Pavlova, because of the inimitable grace of its carriage, and the something wistful that is conveyed to us by the delicate perfection of its beauty—I had almost said art.

All the Cherries are lovely and stand out against the cloudy face of April with unrivalled purity and freshness. The blossoms of some are quite pink, some faintly flushed, and some white as snowflakes—many are double. One could not go amiss in choosing among them, and some of them should find a place wherever the spring is being encouraged to start festivities at an early date.

I always greatly enjoy the precipitate flowering of the purple-leaved Plum, Prunus Pissardi. One day

the branches are brown and stark, appearing as if the last trump would not arouse them, and the very next, seemingly, they are all frosted with delicate bloom. A week later the pink roses of its cousin, Prunus triloba fl. pl., make their appearance, and at the same time the Flowering Almonds, pink and white, attire themselves like brides and their attendant maids.

A newcomer to my garden is Prunus tomentosa, a shapely bush with ascending branches now strung closely with fat round buds. These, I am told, will presently open into flushed blossoms set off by crimson stalks and calyces. Peaches, too, are marshalled for the early show—pink, white, deepest rose-colour, all enchanting. One may choose the fine Japanese sorts with double blossoms, or with an eye to luscious fruits later in the year, the ordinary orchard kinds, and enjoy a like beauty of blossom. Pale-coloured Daffodils, like Minnie Hume, are good to plant beneath the Peach trees in little groups and drifts.

The Crabs open up vast sources of pleasure. They belong to May, for the most part, but here is a list that should find a place in every garden large enough to hold them. No small trees are so picturesque in form, so delicious in blossom and fragrance. Malus floribunda and its numerous forms—this is the most beautiful; M. coronaria, the native Garland Crab; M. ioensis var. Bechtel, the Rose-flowered Crab, M. Niedzwetzkyana, the earliest to bloom with me, and beautiful; M. spectabilis, the Chinese Crab; M. baccata, the Siberian Crab, with lovely white flowers on its dark branches;

M. Halliana or Parkmani, a beauty; and three low-growing forms—Sargenti, toringo, and micromalus.

The Cornelian Cherry is an old garden tree but new to me. I have never seen it in flower, but it is said to bear yellow flowers in great profusion in March and April. It is a well-shaped little tree, close and twiggy, and grows finally to a height of fifteen feet. To bring the flowers out early, it should have a sheltered position, and it is a lover of sunshine. Its proper name is Cornus Mas. And the two species of Corylopsis, pauciflora and spicata, both shrubs of medium growth, also add yellow blossoms to the early festival, hanging their stiff branches with a veil of lemon-coloured racemes very early indeed if the weather be at all propitious. They are not of iron hardiness, though they have weathered two inclement winters in my garden. A warm corner is, however, safest for them, and they love a loamy soil well mixed with sand.

Flowering in April are the two well-known Magnolias, stellata (or, properly, Halliana) and the great Yulan (M. conspicua). In choosing a place for them it must be remembered that the blossoms are quickly injured by frost, a few degrees sufficing to discolour the thick white petals and spoil a whole season's display. A sheltered position where the sun reaches them for but part of the day is safest for them. They are impatient of disturbance and large specimens are almost impossible to move successfully. I have found it safest to buy small plants in the spring when they are just starting into growth. Scillas blossom at the same time

as the Star Magnolia and no more becoming accompaniment could be found for its glistening, starry flowers.

Two bush Honeysuckles—Honeysoke, as early writers called them—offer modest blossoms and rich perfume while yet the feel of winter is keen in the air, opening in March or early April according to exposure and the encouragement they receive from the weather. With me Lonicera fragrantissima has always bloomed first, but L. Standishii follows closely. A little group of these bushes with mats of almond-scented Arabis beneath, and patches of hardy Violets interplanted with Grape Hyacinths, will give great pleasure to the eye and to the nose. Such a bit of spring sweetness could be arranged in the smallest and most modest of gardens. And another is Forsythia—whose blossoming is the candlelight of spring—planted behind a group of Spiraea Thunbergii, and carpeted with single sweet-scented hardy Violets (V. odorata) and Golden Spur Daffodils.

Often the soft illumination of the Forsythias is rendered garish and unpleasant by the nearness of the scarlet-flowered Japanese Quince. Inveterate tradition seems to direct the planting of these two side by side, and how entirely they spoil each other's beauty! Red and yellow is a harsh colour association at any season, but in the spring, when all the world is clothed in tender and delicate tones, it seems especially disturbing. But the Japanese Quince, once Pyrus, then Cydonia, and now most tongue-twistingly Chaenomeles,

is one of the most beautiful flowering shrubs that ever came from the treasure-land of Japan. Its colour is the tempered red of old Japanese embroideries, and a branch of it looks as if it might have been plucked from the kimono of some gay little Mimosa san. There are forms of it with pink and blush blossoms, and C. Maulei is a low shrub with dark branches, spreading and crooked, along which appear Chinese-red quince blossoms in March or April, creating a gorgeous splash of colour against a wall or mass of evergreens.

Many of the broad-leaved evergreens mentioned in the previous chapter flower very early, and their buds, which begin to swell soon after the turn of the year, surround us in mid-winter with a pleasant sense of life and activity, while their dark foliage supplies a perfect setting for the fragile early flowers that push their way upward through the moist, steaming earth. Of these there are a great many to plant beneath the branches along the Primrose Path, besides the Primroses, that have two chapters to themselves later on. There are many early bulbs—Snowdrops, Scillas, Muscari, Tulipa Kaufmanniana, and T. sylvestris, that runs wild where it is happy, sowing its seed and springing up in all sorts of places as carefree as a weed; and Daffodils, all sorts and kinds, in great shining troops. In little bays between the dark evergreens we are growing some of the rarer Daffodils: Loveliness, Spring Glory, Homespun, Lucifer, Will Scarlet, Cossack, Firebrand, Lady Godiver, Ariadne, Queen of the North, Sea Gull, Duchess of Westminster, and very elegant and exquisite are these,

having a sprightly grace of carriage, and some boasting fiery scarlet cups. But on the bank across from them is no less loveliness where the cheaper kinds in great drifts flow among the mats of snowy, fragrant Arabis, Alyssum, and crowding Forget-me-nots. Golden Spur is one of the earliest Daffodils to flower, followed closely by Obvallaris, Cernuus, Golden Bell, Henry Irving, King Alfred, Victoria. White Lady is a lovely pale kind to plant in a lightly shaded spot in generous numbers among Forget-me-nots. Mrs. Langtry and Minnie Hume are charming, inexpensive sorts to strew about lavishly—so lavishly that one may cut freely for the house, enjoying their pale, fragrant beauty indoors as well as out.

Pulmonaria azurea is a beautiful plant of the early spring bearing in great profusion Gentian-blue flowers. It is not planted nearly as much as its charms warrant, nor is its cousin, the Virginia Cowslip, Mertensia virginica; or Bloodroot, Hepaticas, Dutchman's-breeches, Spring Beauty, Rue Anemone, Windflower, and Violets—the earliest being various forms of V. cornuta and our native V. rotundifolia, and the little sweet-scented white Violet (V. blanda)—and in warm and sheltered places the hardy sweet Viola odorata, in several soft colours; all these are set along the path in generous colonies. Ferns, too, are there and great clumps of the fernlike foliage of Corydalis cheilanthefolia and others of its tribe, so good and willing in dryish, half-shaded places. A very small garden may find a place for many of these plants, and with an early flowering

shrub or two be made friendly and inviting before most gardens have begun to stretch and stir.

And now I want to say a word to stay the pruning knife where the early-flowering shrubs are concerned, to beg that it be not allowed in ignorant hands, and to suggest the necessity for extreme caution and self-control when wielded even by ourselves. Many a shrub is deprived of the realization of beauty for which it has given a year of preparation by a few moments' use of this terrible weapon at the wrong season. A fearsome zealousness imbues us all alike in the spring—owner, professional gardener, and by-the-day man. I see persons who never at any other season bestow the least personal care upon their gardens, arm themselves with the pruning shears on the first mild Sunday of the year and go forth, the light of the fanatic in their eyes, to mangle and destroy.

The by-the-day man ever cherishes a passion for pruning. He would rather do it than anything else—unless it be to use the hose, which chore may be accomplished with the minimum of pedal activity. He is, moreover, infatuated with symmetry, and prunes with entire disregard of the natural habit of the shrub, cutting with but a single aim—to reduce all varieties to the likeness of two peas.

Pruning is a science in itself, and not to be here fairly entreated, but I want to repeat the oft-reiterated and oftener disregarded charge, to prune spring-flowering shrubs *only* immediately after they have flowered, and then only if the bushes have become overcrowded with

old wood or have outgrown their quarters. Magnolias are best not pruned at all. Japanese Quince only when the bushes are old and crowded; Forsythia suspensa may be cut back rather hard, the other species just moderately thinned; Naked Jasmine flowers best when cut back every other year to within a few inches of the new wood; this applies also to Almonds; Kerria japonica requires to have the bushes kept free of old growths; Flowering Currant needs no pruning.

The flowering trees are best left alone save to have the weak in-pointing shoots removed in order that air and light may penetrate to all the twigs and branches.

And whatever pruning you must do keep in mind the while the natural grace of the shrub, cutting so that this may be developed to the full, and not lopping it into a round-headed nonentity without grace or blossoms. Most shrubs can do with little pruning, and it is best to do none at all rather than run the risk of doing violence to the beauty as well as to the feelings of these lovely ornaments of the spring. When the bushes and trees have become large enough to bear it, some thinning out may be done after Christmas, and the branches thus gleaned brought indoors for flowering. Forsythia, Japanese Quince, Naked Jasmine, Spicebush, the Plums and Almonds, Daphne Mezereum, Pussy Willow, the early-flowering Bush Honeysuckles, Peaches, and many others will blossom in ten days or so after being brought indoors. The Japanese Barberry, with the berries still clinging to it, is delightful brought into the house for winter decoration, opening its pale blossoms among

the red berries with quaint and charming effect. And I saw in a neighbour's house recently a great bowl of scarlet twigs of Cornus alba, all set with tender pale green leaves.

By such simple expedients may we lure the feet of spring to our firesides long before we can hope to find her out-of-doors.

CHAPTER IV

In Pursuit of the Primrose

A winter wind,
Primroses,
And the new furrow.
—Edith Wharton, "Spring."

WHEN I first began to have a garden, long ago, and sought to gather together in it the flowers I had learned to love in childhood, or from song and story, I thought first of the Primrose. But from one and another I heard that Primroses would not "do" in this country and I, in the midst of many novel delights and excitements, accepted this pronouncement, as we accept so many, without seeking to test its truth. And so in that first little garden were no Primroses. Again, when we made the larger garden in Rockland County, my imagination swam with visions of Primroses, and my hopes ran high.

But disappointment again attended me, for the new garden was not a happy home for them. It offered no rich, cool soil, no moist shaded glades, so dear to the heart of this flower; though even there, in the light soil and unrelenting sunshine, the Polyanthus throve very fairly, and I managed to keep and increase a collection of Cowslips sent me from an old garden in Virginia.

But one may not read English prose or poetry of any period, from Chaucer's to our own, to say nothing of English garden books and catalogues, and not become sick with longing for these sweet flowers that endow the English springtide with the one grace ours has not. And so, when the time came to look for a new home and to make a new garden, one thought was firmly to the fore: I must find a place where Primroses would grow. And grow, not by dint of constant supplication and anxious attendance, but freely, rejoicingly, as Mary Mitford saw them in "Our Village," starring the sloping banks, carpeting the copse, forming part of a natural mosaic, with enamelled wild Hyacinths and spotted Arums and emerald Mosses, linked with wreaths of Ground Ivy with its purplish leaves and spikes of lavender flowers. "Primrosy," she wrote, "is the epithet that will this year retain in my memory." And thus would I one day characterize the spring days in my garden. Primrosy! Could anything more delicious be asked for or imagined?

But it was not easy to find a place where we might hope to realize this dream as well as numerous others. We were shown airy heights that would be as dry as dust in summer; rocky ledges where was no depth of soil; open meadows, sun-baked and wind-swept—all well enough for a lady with two growing children, but no fit home for Primroses. Finally, when discouragement had begun to set in, a bit of hollow pasture, tree-girdled and rank with weeds, appeared to us. The soil was rich and deep, the encircling trees gave the necessary shade

along the boundaries, and in the centre the sun shone warmly. The young agent, who favoured the "high spots," was plainly mystified at our choice, and we subsequently listened to many detractors of the site, to warnings of damp and inundations, and what not, but we felt sure we had found what we sought. The hollow held out its arms to us, and we crept in.

And the Primroses are quite plainly pleased. Two springs have come and gone since we "settled in," and the few dozen Cowslips and Polyanthus brought from the old garden have now as companions many hundreds of Primroses of all kinds and nationalities, all, with few exceptions, raised from seed since we came, and growing vigorously. They are established on either side of the path that bears their name, and will ultimately extend along its entire length—forming broad strips on either side of "natural mosaic"—Primroses, Squills, Grape Hyacinths, Snowdrops, small Daffodils, and Violets, linked with shining bands of Periwinkle, blue bossed—beneath the Cherries and Crabapples, and other blossomy boughs. A fair dream from which to weave a fairer reality.

I find the notion that Primroses will not thrive in this country still rather widespread, particularly among professional gardeners. Undoubtedly it is true that our dry, hot summers are trying for them, especially where no special provision is made for their comfort in sun-baked gardens. But where there is some shade, the soil may easily be made to suit them, and moisture supplied where necessary: and in many gardens are

Aethionema jacunda just coming into bloom. One of the best of its race

On the left Armeria maritima Lauchiana. On the right Alyssum serpyllifolium

Armeria caespitosa, the tiniest of the Thrifts.

Dianthus callizonus against the rock with Gypsophila fratensis below

felicitous situations where these flowers would grow as luxuriantly as we would have them, even seeding themselves, which is the true sign of a plant's having made itself at home. All the race do not require the same conditions of soil and exposure, and it is a forlorn scrap of earth, indeed, that cannot be brought to support some of them in health and comfort. If you love and desire them, it is pretty certain that you may have them.

Of course a few dozen Primrose plants will not imprint their special quality of virginal freshness and dewiness on an entire garden; there must be hundreds, or better, thousands, and this is expensive. But seeds are the open sesame to Primrosiness; seeds, a little patience, some shady corners where the soil may be made rich and holding. My collection has not cost ten dollars and, though I have not counted them, I think must number well over a thousand. In the chapter on Seeds there are suggestions for raising Primulas in this manner, and I trust that many will be moved to add this sweet flower to their gardens if it be not already there established, for few give so much pleasure.

When I speak of Primroses I mean, of course, the race of Primula, including, besides the true English Primrose, her many sisters—Cowslips, Oxlips, Auriculas, alpine forms, and the many splendours from far Eastern bogs and meadows. All are desirable, some almost without peers in the world of flowers and, though some are undeniably difficult to please, with few exceptions may be grown in American gardens where

they are intelligently treated. I offer, in all modesty, my experience thus far with this truly delightful race.

The true English Primrose, the plant that in England, indeed, all over the United Kingdom, "groweth under every bush and hedge," holds for the dweller in that favoured land the very magic of the spring. "It is the one handmaiden that April, fickle though she be, never fails to summon to her bidding." About the silver boles of the Beeches, at the feet of dreaming hedges, no matter how cheerless the April weather, how bleak the winds, the pale blossoms of Chaucer's Primerole appear, prompt to the tryst and proclaiming clearly "the new Spring to bee coming on."

This spring, on a sulky March seventeenth, I found in my own garden, at the foot of a rotting stump, midst rusted fern and brightening moss, an English Primrose in full flower. I had been prospecting along the Primrose Path for a sign of spring and, while I had passed battalions of chilly Snowdrops and green-gold winter Aconites with a heart thankful enough, here was something so richly alive, so warm, so joyously triumphing over cold and gloom that I experienced an instant refreshment of heart and mind. Small wonder that it should be regarded with such tender affection in that country where it is to be found under every bush and hedge. The plant that flowered so early occupies a very sheltered hollow, protected on the north and east, but it was not many days before clusters of cream-tipped buds and unfolding flowers were to be found in other places along the path. And I knew that though I had

loved them before for the sake of the poets who sang of them, I loved them now far more because of the song they aroused in me.

The wild forms of the true English Primrose (Primula acaulis) vary deliciously from cream to butter in their colouring and accord perfectly with the pallid tints of the gently greening branches above them. The flowers, large, flat, and delicately fragrant, are borne singly on a stalk or scape, and the leaves are long rough tongues, wrinkled and uneven, often waved and indented on the margins, and so to be readily distinguished from the smoother leaves of the later-flowering Cowslips. Although it is difficult to imagine anything much sweeter than the common English Primrose, undoubtedly the improved forms claim admiration. Sutton has a fine strain that runs to soft crimson, mauve, dove-colour and pinkish-buff, the flowers of which are large and beautiful. The very early-flowering Harbinger (Thompson & Morgan), with its snow-white blossoms and distinct yellow eye, is also a treasure.

This spring I raised several dozens of the so-called "Blue" Primrose (seed from Barr), which, strictly speaking, I suppose, is not blue, but some tone or tones of lilac and purple. I have a feeling that I shall not care very much for blue Primroses, so much are the ordinary sorts a part of "the yellow and white magic of the spring." But there is this I have just read of them that sounds promising: "To-day, while the woods are yellow, there is a wonderful patch of blue in a shaded dell, a patch that owes its colour to the blue

Primrose . . . little tufts of dozens upon dozens of varying blues that are worth a long journey to see." And so I hope when mine bloom among the yellow Violas and pale Corydalis in two little beds beneath the pergola, that I shall find them worth going often to see. In Parkinson's day a green Primrose seems to have enjoyed considerable vogue, but I gather that this no longer exists as even Mr. Bowles* has been unable to resurrect it.

One reads in very old books, and occasionally in modern ones, of a Primrose with the quaint appellation of Jack-in-the-green. This is described as having the calyx so greatly enlarged as to form a broad green collar about the neck of the flower, sometimes fancifully cut and fluted, again quite severely plain, extending well beyond the petals. I gather that this form is something of a rarity, and sought by those on the lookout for unusual forms of this somewhat erratic plant. Imagine, then, my astonishment and pleasure upon discovering this spring among a batch of seedlings a veritable Jack —a white flower with a delightfully undulating green ruff about its slender neck. All of which goes to show that collecting Primroses is a very exciting enterprise.

Once on a time double Primroses were so common in England that, according to John Rea, Gent. (1676), they were to be found in every country-woman's garden. But like many another lovely flower, once prized, they fell out of fashion during that period when all individuality and spontaneity were swept from gardens by the

*"My Garden In Spring."

craze for bedding, and might have been quite lost had they not been allowed to linger with other refugees in quiet old gardens and cottage plots, not disturbed by the winds of fashion. In a volume of "Florist and Pomologist," 1873, are several articles by one Alexander Dean, of Bedfont, who appears to have conducted a sort of floral revival in the interests of the double Primrose, seeking them out in odd corners and old gardens, and urging others to do likewise; and finally getting together about a dozen sorts, including blush, lilac, sulphur, straw, salmon, red, and several shades of crimson. Mr. William Robinson, who has done more than any one to reinstate the old garden flowers in popular favour, writes: "The forms [of Primrose] most precious for the garden are the beautiful old double kinds. No sweeter or prettier flowers ever warmed into beauty under a northern sun than their richly and delicately tinted little rosettes." And he adds that persons are beginning to grow them again, and are enquiring for the old and half-lost varieties which they knew long ago. Even in England they are still scarce, and here at home they are almost unknown. I say almost, because of a recent gift received of some clumps of double Primroses from a charming garden where plants of to-day and of yesterday are cherished with equal solicitude; and I am encouraged to hope that in some old Maryland or Virginia gardens double Primroses may still be growing.

By careful division the three clumps so generously given me have been conjured into fourteen, and I am

sure no gift I ever had pleased me more unless it be the plant of Hose-in-hose, of which I shall have something to say later on. Pictures in old books show the double Primrose flowers to be enchanting little rosettes, white, buff, French gray, mauve, rose-colour, and crimson, the latter always referred to as difficult and uncertain. Indeed, it seems all Primroses require more than casual attention, and among other necessities, "to be often looked at, or they will not thrive." Which is to say that they want to be coddled—to have a little leaf soil or rotted manure scratched in among their growths now and again, to be watered in dry weather with weak manure-water, to have the ground about them kept nicely stirred, their leaves kept clean and free from grit; in short, to be petted and indulged and kept constantly in mind. And what a pleasure it is to do all these things for such undeniable loves, and how they respond to it! They require also a deep rich soil, decidedly stiffish in quality, and fairly moist; shelter from cutting winds, shade for part of the day, and pure air, nor must they be allowed ever to suffer for want of water during periods of drought. Thus considered, the leaf growth will be fat and luxuriant, by which sign we may know that there will be a very splendour of flowers in the following spring. Indeed, all true Primroses require much the same conditions and treatment. It is of the utmost importance to keep them growing strongly throughout the season if an early and abundant blossoming is to be secured for the next spring.

Primroses are not suited for herbaceous borders, but

are for sheltered, shadowy corners, lightly wooded places, where they may have as companions Hepaticas, and Violets, Bloodroot, Dutchman's-breeches, small Ferns, and emerald Mosses. If your soil is light and dry and there is no shade to be had in your garden, do not try to grow the true Primroses at all, but confine your efforts to the accommodating Polyanthus, which will give fair results even under adverse conditions.

Allow your Primroses to grow into large, thrifty clumps before dividing them. Then dig them up with care soon after they have flowered and separate the crowns gently, making sure of several roots to a crown or tuft. Replant in well-dug soil, freshly enriched with old cow manure, watering faithfully thereafter until they show by fresh growths that they are again established.

Cowslips (Primula veris) are plants of sunny pasture-lands. In gardens they thrive happily in sunshine if they may be sure of moisture at the root; if the soil be dry they must be given the comfort of shade. On the whole I have found them easier to please than the true Primroses, and just as delightful, though they do not flower as early in the spring. The blossoms, in their soft white husks, are carried in a full, irregular umbel, the outer ones pendent on sturdy stems well above the tuft of rather smooth leaves. Soft yellow is the colour of the wild sorts and in the throats of the blossoms are bright orange-coloured spots.

In their gold coats spots you see,
These be rubies, fairy favours.

The fragrance of Cowslips is balmy and delicious, reminiscent somehow, even to us who have never seen them scattered over a meadow in thousands "like white flocks of early lambs," of the homely simplicity of country life, and all the wholesome occupations and pleasant gifts that pertain thereto.

Long before I ever saw a Cowslip I loved them for the sake of "Mary's Meadow" and the good company that sported there—dear Traveller's Joy and the little Weeding Woman, the Honest Root Gatherer and the good dog Saxon; and the old Scotch gardener who, like the rest of us, liked to "feel a good smell," and even the cross but finally regenerate Squire himself—all working, each in his way, to make an Earthly Paradise, and succeeding very well, too. In this ever-delightful and refreshing tale of Juliana Horatia Ewing's, I first learned of the many different and quaint forms of the Cowslip that grew in early English gardens, and sighed for them; and later when Parkinson's great "Paradisi In Sole" (1629) came into my possession, and I saw the delightful pictures, and read at first hand of these unusual forms, they became more than ever the goal of my desires. There were the common field Cowslip, the Primrose Cowslip, the single Greene Cowslip, Curled Cowslips, or Galligaskins ("which doe resemble men's hose that they doe wear, and tooke the name from thence"), double Cowslips, or Hose-in-hose, and the "Frenticke or Foolish Cowslip," called by country people, Jackanapes-on-horseback, because of the "strange and fantasticall" arrangement of its petals.

Assuredly an intriguing list, yet for a long time I could not even procure in this country the common pasture Cowslip. Whatever might be listed in the catalogues it always turned out to be Polyanthus when it reached me, and these are something different altogether.

John Sedding said that a love for beauty somehow entices beauty, and perhaps it is true that a great love of anything is able to perform miracles. For first there came to me, most unexpectedly, a gift of some fine clumps of the true Cowslip of English meadows. These flourished, and being divided every few years, soon came to be many that in early April transform themselves into veritable bouquets of fragrant beauty and freshness. Then I acquired the knowledge that from French and English seed houses I could get seed, not only of the common field Cowslip, that is sometimes listed as P. suaveolens (this I believe is the European form), but improved forms with larger flowers and fuller umbels, as well as some with bright orange flowers that are very striking and handsome. This was a great gain, and then, miracle of miracles, there came to my garden, not by way of the rainbow or the moon path, which would seem fitting, but by the common post, a plant, so generous in size as to be divisible into three, of the genuine Hose-in-hose, that might well have been trowelled up from Parkinson's Earthly Paradise, or at least from Mary's Meadow.

So many of my garden blessings have flowed from the same source that I should like well to make acknowledgment here to the great and generous gardener

to whom I owe so much, but I dare not mention his name lest I bring down upon him a horde of eager Cowslip lovers, and thus for ever disrupt his peace and quiet. Suffice it therefore to say that no treasure received from his great store ever gave me the pleasure that did this plant of Hose-in-hose, and I hope to make it so increase and multiply that I may give myself the great enjoyment of sharing it with others who care for such quaint old-fashioned trinkets.

My mind is now concentrated with Couéan pertinacity upon finding the "Frenticke or Foolish" Cowslip, and so stout has grown my faith in green miracles that I should not be surprised to come upon it any day.

A Hose-in-hose is a double Cowslip, that is, "it beareth one single flower out of another," and is not double in the sense of a multiplication of petals as is the Primrose. In Parkinson's book they are called, *Paralysis flore geminato odorato*, and there is a good illustration. John Rea said he had in his garden "five distinct diversities" of Hose-in-hose. Mine are red and yellow, and are very gay and pretty in a little patch beneath a Spicebush whose quaint inflorescence seems somehow to accord with them. The plant is smaller in all its parts than the ordinary Cowslip, and less vigorous, though not at all sickly or difficult.

Thinking of Cowslips brings to mind some pleasant customs; that of children playing with Cowslip balls in the shy English sunshine, for one. I have always wanted to know how to make a Cowslip ball and lately came across the directions, which I will set down for

the benefit of any who cherish, like myself, the hope of one day making these pretty toys for the small folk of the neighbourhood: "Nip off the tuft of flowerets just below the top of the stalk, and hang each cluster nicely balanced across a riband, till you have a long string like a garland; then press them closely together and tie them tightly up.". And also of the manufacture of that sweet non-intoxicating wine, said to taste like Muscatel, rules for which are in all the old household books and herbals. The wine of which Pope wrote:

> For want of rest,
> Lettuce and Cowslip wine probatum est.

And Cowslips, indeed, were important in many decoctions favoured in rural neighbourhoods for medicinal purposes, cosmetics, or as garnish or ingredient of various culinary efforts. A certain London physician of the 16th century, famed for his ability to alleviate the "frensie" —a complaint still awaiting a panacea—ordered his patients to go yearly in the month of May to the country and drink copiously of an infusion of Cowslip leaves in fountain water. A pleasant prescription this, reminding one of the advice of Chaucer's nightingale:

> Every day this May or thou dine,
> Go look upon the fresh daisie,
> And though thou be for wo in point to die,
> That shall ful greatly lessen thee of thy pine.

The Oxlip (Primula elatior) may be "described as a Cowslip with umbels of Primrose flowers on a centre stalk." The flowers are round and flat like those of

the Primrose, but borne in clusters as are Cowslips, and they have little or no scent. Oxlips frequent rich moist meadows; they revel in moisture and sunshine, and when brought into the garden must be given a rich, moisture-retaining soil, for they suffer greatly if dry at the root for any length of time. I raised a fine lot of Oxlips from seed sent me from the Floraire Nurseries, at Geneva, and enjoyed their bunches of yellow bloom this spring for the first time.

From the union of the Primrose and the Cowslip, it is supposed, has sprung the Polyanthus, "of unnumbered dyes"; though some botanists refer it to the Cowslip, alone, and others state it to be a Primrose that has accomplished an elongated scape. If we heed an ancient superstition, all that is necessary is to plant a Primrose upside down and it will come up a Polyanthus. But for us who are not botanists their origin is of far less importance than the fact that they are most lovely and useful garden flowers, the best of the sisterhood for general garden use. They are hardy, very floriferous, fragrant, and much more patient under our climatic dryness than one would expect from their parentage. Most of us are familiar with Miss Jekyll's beautiful Bunch-flowered Primroses; these are typical of the Polyanthus at its best and were the reward of thirty years of patient and discriminating selection. Her strain is splendidly vigorous, and the bunches of bloom carried on tall, stout stems ring an almost infinite change on the pleasant scale between white and full yellow. A bed of them on a sunny spring day is fresh and spar-

kling quite beyond the power of my pen to convey. And there are other fine strains, some including bright scarlet and orange-coloured varieties, as well as the brown-and-yellow one with which we are more familiar.

This year I have a fine patch of the "blue" Polyanthus that will bloom next spring, and also many plants raised from Thompson & Morgan's Bronze Queen, said to include apricot, bronze, and orange tones. All these kinds are lovely among spring flowers, particularly Tulips with which they are often bedded out. But I like them best grown in informal borders, scattered in groups among clumps of Tulips and Daffodils, mats of Aubrietia and Alyssum, sheets of Forget-me-not and the like, beneath the wreathed boughs of flowering trees.

In light, dry soils the Polyanthus should be divided yearly and replanted in newly enriched ground just after flowering; but where the soil is stiffer and moister division every three years will probably be sufficient. These plants are easily to be had from seed, and the more of them we gather into our garden, the gayer will be the spring festivities.

It is interesting to read the history of the Auricula (Primula auricula), a simple mountain flower suddenly called to be the cynosure of the horticultural world. At home a plant that "rivals the Gentians and Pinks and Forget-me-nots in making the alpine fields so exquisitely beautiful," it became, soon after its introduction into England, because of its vigorous constitution and propensity to sport when raised from seed, a great florists' flower, victim of hair-breadth distinctions, and

for many years occupied the attention of the greatest florists of many lands. Under their driving hands it was contrived and coerced to a pitiful geometricalness, the shy prettiness of the mountain flower replaced by round-eyed boldness. You may read the triumphant story in the "Cyclopedia of American Horticulture" or, if you like to turn back the pages of the years, you will find in Parkinson's great book six pages devoted to the consideration of the Auricula, and a page of fine woodcuts that I am sure are speaking likenesses of the kinds that grew in the Queen's garden.

But not only did florists seize upon the Auricula and bend it to their will; ordinary folk who loved their gardens took them to their hearts, and poets sang of them. Quaint names were bestowed upon them—Bear's-ears, Tanner's-apron, Mountain or French Cowslip, Dusty Miller—names never won by the mathematical triumphs of the show bench. And it is the unimproved form of this mountain Primrose that we like to cherish in our garden, but it is difficult enough to find any sort of Auricula growing under the Stars and Stripes. My plants came several years ago from Edward Gillett, of Southwick, Mass. They are a small company, a dozen plants, and look as if a proud ancestry still o'ershadowed their health and spirits. They are a bit staring, a bit weakly, but I do like them very much and wish I had more. They are of that pleasant old-fashioned hue once known as murrey-colour, like the warm side of a purple plum, with a pale edge, and the green of their thick, shining leaves is extraordinarily beautiful in the

spring. At the present time they occupy a sheltered location in the rock garden, in deep vegetable soil that is never quite dry, and they should flourish. But they do not thrive conspicuously, nor can they be said to languish, and I am not under the necessity of dividing them yearly, as we are told is proper.

This year I had a fine stand of Storrie's New Giant Yellow Auricula, vouched for as being very fragrant and beautiful, vigorous, and perfectly hardy. But one of those terrible "somethings" befell them, and they were cut off in the pride of their infancy—a great loss, as it was the first time I had been able to induce Auricula seed to "come up" at all, and I wanted particularly these yellow ones, enriched "with shining meal o'er all their velvet leaves."

An endearing characteristic of Primroses in general is that though their chief time of flowering is in the early months of the year, they keep up a "smouldering fire of bloom" during the late summer and autumn. Now, in late November, Primroses and Cowslips are showing in many places along the path, and it is almost as pleasant to find them in November as in March. Auriculas, too, are sending up a few soft-coloured blooms, encouraged by the cool nights and what my by-the-day man, Dominic, calls "so many dews." Down in the hearts of the great cabbages of Primula japonica fat wads of buds are formed and showing a little colour, and for several weeks P. denticulata has been hoisting little pale balls of bloom on short stems, very different from their imposing spring performance, but none the less welcome.

CHAPTER V

Further Pursuit of the Primrose

MOUNTAIN AND BOG

THE Primroses of the last chapter might perhaps be characterized as domesticated kinds, so long have they been a part of garden life and loveliness as compared with the startling luminaries that have more lately sailed into view from various mountainous regions of Europe and the East. Primula is a widely distributed and numerous race, and while many forms have already been introduced, chiefly through the indefatigable prowling of Mr. Forrest and Mr. E. H. Wilson in the wilds of China and Japan during the last two or three decades, it is safe to say that the song is not yet sung and that we shall be heralding new species for a long time to come.

For convenience we divide the kinds we already know into two sections—Mountain species and Bog species, or rock-lovers and moisture-lovers.

MOUNTAIN PRIMROSES

My tale of the rock-lovers, or alpines, is a tragic one, and should properly be writ in tears and punctuated with groans and sighs, or perhaps not written at all, but misery loves an audience. And indeed I am sad and somewhat discouraged, for under my care these

A PROMISE FOR THE FUTURE

The rock garden walk in its first year. Phlox amœna in the foreground

SAXIFRAGA MACNABIANA
One of the best of its kind

alpine Primroses, so small, so keenly alluring, so difficult to procure, have thus far always developed strong suicidal tendencies and managed to slip off into the mists of the beyond despite my quite agonized vigilance and efforts to detain them. The fact that they are so difficult to get makes the loss of one a real calamity; a calamity for which philosophy has no balm, for while through our loss we may have gained valuable knowledge, there may never be on this plane an opportunity to profit by it, unless we be patient and skilful enough to raise these small treasures from seed. At this moment I am watching with a prayerful heart a small colony of P. calycina, recently transferred from the frame to the rock garden. The plants are very small but the thick shining leaves seem to radiate a settled content and my hopes are once more soaring. Primula calycina (Italian Tyrol and Lombard Alps) is said to be "an easy" among alpine Primulas, as well as one of the loveliest. If all goes well it will hang out, one April day, above its thick pointed leaves, loose sprays of pinkish-lilac blooms, and how proud I shall be, forgetting, as is the happy way in gardens, past gloom and failure.

The alpine Primulas are said to dwell most happily in tight fissures of rocks behind which lie a generous depth of sandy loam wherein the long roots may delve and feed. They are small exquisite creatures, having the characteristic tufted growth, often but a few inches high, with large bright flowers and thick shining leaves sometimes edged with silver and toothed.

As do so many mountain plants they flower very early in the spring—close on the hem of the receding snows—and from what I have seen of them I judge them to be among the most enchanting of alpine plants. Mr. Farrar's vivid pen pictures them for us "hanging in curtains and cushions among mossy rocks where the sun is rare, or not too violent." Fairy upholstery this, and difficult for us whose experience must be so narrow to visualize; but we are the more keen for this radiant goal toward which to work.

It is said that alpine Primulas will stand more sun than others, and the leathery-leafed kinds more than those with soft downy foliage, but I feel assured that in our climate all should have the shade provided by a rock or very low bush on the south and east sides of the colonies. All authorities speak of their eccentric habit of hoisting themselves out of the ground in winter, greeting you in the spring with roots recklessly exposed to the inclemencies of the weather, and of course they must be poked back into comfort and security, and given a restraining covering of gritty loam.

Last year I grew from seed P. viscosa (Alps of Piedmont and elsewhere), and proudly potted up the thrifty-looking little silvered rosettes and sunk them in a frame to winter, covering them with leaves at the approach of freezing weather. Here they continued to grow, and were twice the size when I went to look at them in the spring. Then, one ill-fated day I set them out in the rock garden, giving them every comfort and consideration that I could devise. That night it began to rain;

not mild, comforting, salubrious rain, but unrelenting gray torrents that continued without pause for three days, and were followed by three days more of glowering humid weather, and my mountain Primroses hastened to embrace death. Nothing could hold them after such a reception though now, looking sadly backward, I believe that had I but had the forethought to erect a piece of glass over them when it began to rain, the tragedy might have been averted. Anyway, a glass roof shall be given the small calycinas for the winter in the hope of saving them from a like fate.

Mr. Lown once gave me a plant of P. marginata. It wintered and summered in my garden twice, flowering once, entrancingly, with the Hepaticas, and then suddenly sickened and died during a spell of moist, sunless weather in May. Despite this tale of failure and discouragement, these three—calycina, viscosa, and marginata—are considered by those in a position to know the easiest of the true alpine Primulas. Persons gardening in high altitudes where the air is pure and light, where snows lie long and deep, will probably have quite a different tale to tell of these mountain plants; but we in the lowlands, the prey of fogs and mists and glowerings, will need to bring more skill and patience to their service before our sad lay will turn to one of praise and rejoicing.

Among the rocks along the rushing streams of our Western mountains several species of Primula are to be found but, though known in English gardens, they are certainly not in ours, and it is well-nigh impossible to

get them. A year ago, in the autumn, Mr. Purdy sent me a plant of P. suffrutescens collected by him in the mountains of California. It has the characteristic tufted habit, with thick toothed leaves. I knew nothing of its natural habitat and much less than I now do of the foibles of its kind and, though it lingered over the winter, the spring found it but the ghost of itself, and it soon perished. This plant is referred to by English gardeners as "difficult," but P. Parryi, that haunts the stony banks of Rocky Mountain streams, is spoken of by Mr. Farrar quite casually, and not at all as if it were a confirmed "miff." Mr. Meredith, in "Rock Gardens," recommends for it "partial shade in moist, spongy loam, leaf-mould, and peat." Repeated efforts to obtain this plant have not been successful, nor have I been able so far to get seed, not even from Floraire, whose catalogue offers more than a hundred species and varieties.*

The Bird's-eye Primrose, a plant long known to gardens—as far back as Parkinson's day—is also found in our Western mountains and, according to the "Standard Cyclopedia of Horticulture," in Maine and on Lake Superior, as well as in the Highlands of most of the temperate world, where it spangles the high-flung meadowlands and mountain marshes with pinkish-lilac stars. It is a small, dainty love of a Primrose, worth taking infinite pains to please. Parkinson speaks of it as "this little Cowslippe (which will hardly endure in our gardens, for all the care and industrie we can use to

*Mr. Andrews of Boulder, Colorado, offers P. Parryi.

keep it)." . . . So even in that early day Primroses were putting gardeners on their mettle and causing them disappointment and travail of spirit. But Primula farinosa is not really a difficult plant; it requires for its comfort a moist, rich vegetable loam in a shady place among stones and to be divided occasionally and reset. It makes a small tuft of leaves silvered with meal on the undersides, from which spring the slender stems to a height of not more than six inches, carrying a many-flowered umbel of dainty flowers, lilac-pink with a distinct yellow eye.

Near to the Bird's-eye, but a larger and more robust plant—though still a fairy—is P. frondosa, of the Balkan mountains. This is a charming plant, sprinkled well with silver powder, and bearing full clusters of pinky-mauve flowers for many weeks in the spring; from early April onward. It is hardy and amiable, and thrives with me in a partially shaded place in gritty loam much less moist than that required by its smaller relative. Both, to be effective, should be seen in large colonies, and as they come readily from seed, this is easily managed, and it is pleasant to give them as neighbours small pale Daffodils (G. F. Milner), alpine Forget-me-nots, deep-toned Aubrietias, and other early adventurers.

Two delightfully easy and very winsome Primroses for the rock garden, or for any half-shaded border where they may be protected from the encroachments of stronger-growing plants, are P. cortusoides and P. Sieboldii. These, as I have been able to obtain them,

seem to me identical, but some authorities refer Sieboldii to P. amoena, and others make it a form of cortusoides. In any case, to the lay eye they are one and the same and serve the same charming purposes. P. cortusoides is said to be the common Primrose of wooded Japanese uplands. It has soft wrinkled leaves and large crimson flowers in loose clusters borne on stems from three to six inches tall. The leaves die quite away after seed has matured and one must beware of digging up the roots which lie near the surface of the ground. Under the name Sieboldii I had some of other colours—lavender, lilac, blush, and some white ones, prettily fluted and larger on shorter stems. They begin to bloom here toward the end of April. In common with so many of the family, they love a rich, deep vegetable soil—leaf soil, rotted cow manure, rotted sods—a soil that retains a plenitude of moisture, but a position high enough to insure them against corroding damp in winter. Shelter from winds they should also have, for the growths are fragile and easily torn and mutilated. This is a charming plant for the rock garden on the north side of a rock with some little shrubs to shield it from the angry airs; I have two patches of these Japanese Primroses along the Primrose Path; the one on the east side is under some shrubs, and that on the west is in the rock garden. They give me much pleasure, and I hope to increase them both by seed and division of the roots. If the roots be purchased ready grown, autumn is the time to set them out, planting them just beneath the soil and protecting them well with litter

and branches lest they be thrown out by the heaving frosts.

BOG PRIMROSES

All who do gardening in this part of the world where winter swoops like a fierce eagle and transforms in a fraction of time to a dove, its heart melting within it, must learn the terrible menace of winter wet. No greater strain are plants subjected to than the grievous wrenching and tearing caused by alternate freeze and thaw to which our climate is addicted, and the penetrating discomfort of standing water about sensitive crowns in winter. For this reason I am emboldened to advance the theory that for such a climate as prevails in the Middle Atlantic States, a bog is a very unsafe place for bog Primroses. Even in low, poorly drained parts of the garden where the soil is apt to become charged with moisture during the winter I have lost many plants of denticulata, pulverulenta, japonica, and others. In consistently cold localities where the ground remains frozen until spring I should pronounce the bog a perfectly safe place for these moisture-loving Primroses, but here I put my faith in shady borders of deep rich soil well mixed with stones, or in a woodland home. The ideal place for them is the sloping sides of a stream or pond where the roots may seek the life-giving water while the crowns remain safe and dry. Few persons are so fortunate as to have a stream or pond within their boundaries, but they may nevertheless grow the bog Primroses with a good deal of success; although it means artificial watering daily in dry weather throughout their

growing season, not only in the flowering period, but afterward when they are perfecting their magnificent cabbages and preparing for next season's amazing show.

And these Eastern Primroses are amazing. Their great height, their superb vigour, the multiplicity of their blossoms, their daring colours, have not before been encountered in Primrosedom; and even if one does not feel for them the tender affection entertained for some of the small shy sisterhood, one is nevertheless inevitably intrigued by them and unable to bide easy while any remain unknown.

A splendid collection is offered by Mrs. Wolcott of the Wolcott nurseries, Jackson, Michigan (whose notes are appended to this chapter); and they may be raised from seed if the directions given in the chapter on seeds be faithfully carried out.

Earliest to bloom of the Bog Primroses is denticulata, a beautiful Himalayan, sturdy and amiable, that begins to send up its charming balls of bloom with the hardiest of April's children. This plant forms a large tuft of long crinkled leaves, much like those of the common Primrose, from the midst of which are hoisted numerous stout stems topped by round heads composed of closely set small flowers in various tones from white to a fairly full purple. This plant is most emphatic in its demands for a dry winter treatment. The leaves die quite away in winter leaving the sensitive crown exposed to the weather, and it quickly rots if standing water, or even much sogginess of soil, be imposed upon it. I grow them most successfully in a narrow north border along the

Primrose Path where the soil is black and rich but very well drained. They are rather large for small rock gardens, but where there is plenty of space appear very lovely against the gray rocks. P. cashmeriana is variously described as a form of P. denticulata and as a closely allied species, the difference lying in the yellowish meal that powders the stems and leaves of the former plant. I have never possessed this plant, for though I have ordered it from nurseries and supposedly raised it from seed, the distinguishing meal has never materialized. P. capitata also belongs to this group, as evidenced by its Primrose leaves and round flower-heads, but it is a much dwarfer and daintier plant—a love for the rock garden, where the sharp drainage meets exactly with its ideas of comfort if shade also be given it. It is a charming plant, coated—leaves, stems, and calyces—with a pale powder most becoming to the globes of light violet blooms. Its fault lies in the fact that it is not reliably perennial, but it is so easily raised from seed that this need not greatly detract from our pleasure in it. P. capitata has not long been resident in my garden, but I read that on the cool side of the rock garden, in soil rich with vegetable matter and with a little peat and a sprinkling of small stones or grit, it will self-sow freely, perpetuating itself as certainly as does its giant compatriot, P. denticulata.

Probably the most easily grown and best known of the bog Primroses is japonica, introduced from Japan about sixty years ago. It was one of the many valuable finds of Robert Fortune, and the first of the great East-

ern bog Primroses to enter English gardens. At the time of its introduction it made a good deal of stir in the gardening world, and an article in a periodical of the day begins, "Hail! Queen of Primroses," and in the course of the most glowing commendation characterizes it as "hardy as a peasant and resplendent as a princess."

But like all its great genus, P. japonica is still very little grown in American gardens, though "over there" it has already been more or less put out of countenance by the arrival of newer magnificences from far Chinese and Japanese bogs. A number of years ago some plants were given to me; they did not thrive conspicuously in the old garden, but here, on the lower reaches of the rock garden, in deep gritty soil and full sunshine, my half dozen plants have seeded so freely as to become a veritable menace to smaller plant-life in the same region, and the lusty young cabbages must continually be rooted out.

Primula japonica forms compact tufts of rich green leaves whence arise, in mid-May, stout stems to a height of two feet or more displaying whorl upon whorl of magenta blossoms that make a splendid show. Many will not care for this commonest form, but given a place by the waterside against gray-leafed Willows, or in a woodland recess, away from detracting hues, it will give pleasure to the most exacting eye. But even among the magentas there is a great deal of choice, for many are weak and blurred, and these should be destroyed without consideration and only the purest and clearest tones retained.

A packet of seed of "white and light-coloured forms" may yield surprises; perhaps the pure white one with a yellow eye, probably some good light pinkish ones good enough to keep; but there will invariably be a percentage of indefinite, blotched forms that should be thrown out.*

From Mrs. Chandler's famous garden at Tuxedo I once had a few seedlings of a japonica with ruby-coloured blossoms that had no hint of magenta, and these are unquestionably the finest I have seen. These plants have been segregated and I hope to raise up a fine lot of babies of colour as pure as that of the original plants.

Mr. Bowles says that japonica's idea of luxury is mud, but it appears well able to do without this particular luxury, and to flourish in shady borders where the rich soil is sufficiently deep for the long roots to find coolness and moisture somewhere below the surface. It is too large and pervasive for any but extensive rock gardens.

Primula pulverulenta is one that has more or less eclipsed the fame of japonica. A good deal like it in many respects, there is yet a great difference between this splendid Chinese Primula and its Japanese rival. Taller by many inches than the Jap, it carries its successive tiers of magenta blossoms—a truly glorified magenta—with consummate grace and lightness; its stem, slender and tapering, is coated with pale farina —always an enchanting embellishment of these "rosy" Primroses—and the lightly arching leaves form a loosely

*Have a splendid lot of these white and light forms from Sutton's seed.

assembled tuft in marked contrast to the stout cabbages of japonica. It is a graceful and noble plant than which nothing finer could be found for broad woodland planting, where the conditions are fairly moist, or for clothing in a glory of colour the sloping banks of streams or ponds.

Primula pulverulenta is perfectly hardy, and offers no difficulties of culture; but it quite plainly requires more moisture than japonica during the growing season, and it is just as sensitive to an excess of it in winter. I have one colony on the west side of the Primrose Path in deep leaf soil enriched with manure, and another being tried out in a low woodsy place much enjoyed by wild Azalea, but I dare say in its native bogs it attains a grandeur that will never be reached under the conditions that I am able to offer.

A pale pink form called Mrs. R. V. Berkly is on the market, but no pure white one has thus far appeared. As in the case of japonica, from a batch of plants raised from seed it is important to cull rigidly only the finest and clearest colour tones in order continually to raise the standard of one's stock—and there is always the exciting chance of finding the longed-for albino, or an improved variation of the characteristic hue.

Primulas Bulleyana, Beesiana, and Cockburniana are also recent arrivals from high Chinese bogs and meadows. All three are of the candelabra type, that is, bearing their blossoms in tiers, one above the other, upon the slender, stiff stalk. Bulleyana, flowering soon after japonica, has flowers of a soft buff-apricot,

flushing as they fade. Beesiana, flowering still later, expands whorls of crimson velvet blooms enlivened by a yellow eye, and has the added charm of delicate fragrance. These two grandees dote upon a rich soil—rotting leaves, peat, and strong loam—and a position where moisture is freely available in summer. They are hardy and vigorous and may be relied upon to prosper if not allowed to suffer thirst in summer or wet feet in winter.

In a frame I have two rows of thrifty green babies labelled P. Cockburniana, so that all I know of this spectacular Primrose is hearsay. But the news is of such an exciting nature that I find it hard to possess my soul in patience until these infants shall have arrived at blooming estate. Imagine a Primula with flowers of a brilliant orange-scarlet arranged in graceful tiers around its slim stalk. This is a bare description. The plant is unique in colour among its kind, and imagine the gaiety of the rock garden when broad colonies of it flower among the drab stones and boulders. Even rumours of unreliability do not dim the pleasures of anticipation in this case, and one may hope by giving it good culture, a sheltered position in deep vegetable soil and grit, and, by the advice of Mr. Farrar, yearly division after flowering, to make it a permanent resident. But even in the event of its proving a dyed-in-the-wool biennial, it would surely not be too much trouble for so splendid a reward to raise a few plants yearly from seed and the seed gathered fresh from our own plants will germinate readily, so that the trouble involved will be

no more than we are accustomed to expend on the commoner biennials of the flower garden.

It is not surprising that the superb colour of P. Cockburniana should have attracted the attention of hybridists and caused them to indulge in dreams of a new race of Primulas dancing down the years in raiment of a gorgeousness undreamed of before the introduction of this splendidly arrayed Chinese. And the astonishing procession is already well on its way—children and grandchildren of Cockburniana wondrously garbed in light scarlet, blood red, raspberry pink, fiery red, russet, orange, and the like—and all as vigorous, say their sponsors, as the one parent, and as pleasing to the eye as the other. I am watching with interest small colonies of Red Hugh, Aileen Aroon, Lissadel Hybrid, and others; anticipating many thrills, but it must be remembered when raising these plants from seed that careful selection must be practised, for there will always be among the seedlings a percentage of poorly coloured forms.

Two important hybrids have also resulted from the union of Bulleyana and Beesiana: Alannah, coppery in tone with a deeper eye, and Asthore, said to have "coppery old-rose blossoms tinged with heliotrope and shading deeper to the yellow eye."

I have also a number of small plants—as yet unbloomed—of Primula Poissoni, which has the distinction, among marsh Primroses, of glossy toothed leaves with a white mid-rib. Tenderness is whispered against

this plant, but as Mrs. Wolcott reports it hardy in her cold locality I think it is more likely to be winter-damp than winter-cold that is its fatal scourge. It is said to grow no more than a foot high and to bear "rosy-purple" blossoms in spring and autumn.

It is plain to see that with such material to hand a Primrose Path may be a very sumptuous affair indeed, and yet we have not more than faintly scratched the surface of its possibilities To read such a list of Primroses as is given in the Floraire seed list is to seethe with desire and intention. No one in this country has blazed the trail to a knowledge of Primroses for us save Mrs. Wolcott, and to her all praise and gratitude are due. The notes below are hers and are of the utmost value in showing what may be done with these most desirable of flowers in a climate of much greater severity than ours:

All Primroses require a rich stony soil and good drainage. They should never be allowed to suffer for lack of moisture in summer and the soil should never be allowed to bake or get hard. A very satisfactory mixture is made from two thirds rich loam and one third peat; to this add one third the bulk of very fine stones. In preparing your place for planting, use this mixture for a depth of two feet. After planting, top-dress the soil with fine stones.

P. Beesiana—One of the treasures of the garden. Easy to grow and perfectly hardy. Plenty of moisture in summer and a light covering of leaves in winter. The same remarks apply to P. Bulleyana.

P. capitata—Needs more stones and better drainage than some of the others, and a little more protection in winter.

P. Cockburniana—Requires good drainage but is perfectly hardy.

P. cortusoides—Easily grown in the mixture described above.

P. denticulata—In a moist situation these grow to an immense size. Only one precaution: protect from early frosts.

P. farinosa—This has always done well for me. Not effective unless planted in masses, close together.

P. Forrestii—Very hardy and satisfactory. Blooms freely and is a good robust grower. (The flowers are golden yellow.)

P. involucrata—Very good but requires much moisture and considerable shade. Also needs mass planting to give a good effect. (White flowers, 1 ft.)

P. Littoniana—These are hard to please—difficult enough to please the most ardent gardener. (Lilac-mauve.)

P. luteola—A fine variety, vigorous and hardy, whose only demand is for free drainage. (Yellow flowers.)

P. rosea—One of the most beautiful. A wet bank is the most satisfactory place for them. They then have wet feet with perfect drainage. Not as easy as some of the others but well worth any trouble necessary to grow them.

P. sikkimensis—Have had trouble with these, but have a good stock now growing in almost pure stone (fine) with very little soil added.

* * * *

At the beginning of this ramble along my Primrose Path I reported finding a Primrose blossoming on March seventeenth. I have now to chronicle the, to me, astonishing and delightful news that to-day, December fifth, though we have had several inches of snow and thick ice on the garden pool, there are still Primroses budding and blossoming in several sheltered locations. The intrepid venturer of last March is again distinguishing itself; the Jack-in-the-green has a charming bouquet at its heart; crimson and yellow Polyanthuses are making gay one sunny corner, and there are many short-stemmed lavender flower-heads rising just above the fading leaves of the denticulates. I could gather quite a bouquet, had I the heart to take them. Of course the long open autumn has made this late festivity possi-

Dryas Sundermanni. A fine plant for an exposed position on the rock garden

Dwarf Spruce with Polemonium humile in the foreground

Phlox subulata Nelsoni, a close-creeping, white-flowered variety

Gypsophila fratensis, the best of the small Chalk-plants

ble, but whatever the cause, I am very pleased and grateful. And I know no other flowers, save the gay "Johnnies," that will hold out so warm a hand of fellowship to us at "winter's eleventh hour," or see us into the white silences with so blithe a farewell. It is my belief that I—and you, too, if you will come—shall always be able to confound the calendar and find the way to spring along this Primrose Path.

The drift is in the hollows of the hill,
  Yet primrose leaves uncurl beneath the hedge;
Frosts pierce the down, and the north wind blows chill,
  Yet snowdrop spikelets rim the garden edge.

CHAPTER VI

Violets of Hill and Dale

It is the time of violets.
It is the very day
When in the shadow of the wood
Spring shall have her say
Remembering how the early gods
Came up the violet way.
Are there not violets
And gods—
To-day?

—Witter Bynner.

APRIL is the month of Violets, and I am always surprised to find how many kinds grow in my garden, for I never set out to collect them deliberately as I have Primroses, Poppies, Geraniums, and others. Indeed, the genus is so vast—there being seventy-five species, irrespective of varieties and hybrids in North America alone—that a large garden would not suffice to hold them all, nor a long life be long enough for the gay enterprise of getting them all together.

But by degrees a numerous company have drifted into the garden by way of one channel or another, and I am becoming increasingly conscious of their gentle charm and quite amazing diversity. A few hundred years ago old Gerade wrote of Violets: "They admonish and stir up a man to that which is comelie and honest";

and is not this true of many of the small shy things of woods and gardens that we must seek beneath shrubs and in odd corners, turning back the brown leaves with a stick to get a peep at them? They have a message for us not brought by the showier folk that challenge our attention from the summer borders.

And one may grow a great many Violets, tucking them away in out-of-the-way places, and not miss the room. The smallest garden can accommodate a wide variety without shutting out any other favourites, and there is this pleasant fact that I have discovered concerning them which makes a strong appeal to all of us who stay beside our gardens the year through; there are few months in the year when we may not pick a Violet of some sort if we use a little discretion in their choice and disposition. They have the happiest way too, of bursting into blossoms at off-seasons—very late in the fall, at mid-summer, or at any time, seemingly, when the notion takes them to smile—and how pleased are we always at these unexpected smiles!

Violets, or Violas properly speaking, are of two types: the true Violets, like those we gather in field and wood, and the Pansy-Violets, to which group belong the Johnny-jump-ups, Viola cornuta, and other showy varieties. Both types have their place and uses in the garden, and supplement each other effectively in diffusing a sense of quiet charm and modest gaiety. Of course the Pansies are the liveliest, but no less are the true Violets lovable; and of these I am going to speak first.

On a mild day, often very early in March, when fol-

lowing a path that runs from east to west in the garden, I am apt to be met and rooted to the spot by the warm fragrance of Violets. Perhaps no experience of the gardening year brings quite the same thrill as does this rich perfume freighting the cold March air. A little investigation reveals nestling among the dry leaves a few Sweet Violets, and if the mild spell continue for a day or two, I may easily fill the old glass finger bowls that are theirs in particular, and enjoy the incomparable sweetness in every room in the house.

No garden, however small, however grand, should be without its bed or border of Sweet Violets (Viola odorata), for if given the little care and attention they require, they will bloom graciously for a month or six weeks in the spring, and no products of the hothouse can vie with them in sweetness.

A northwest aspect is generally advised for them, as they are happiest when not exposed to the full force of the sun in summer. On the other hand, if given a southern exposure, they bloom the sooner, and one may keep them from suffering in summer by faithful watering, or by shading them in various ways. My own are grown on either side of a long path that is open to the sun for a large part of the day, which explains their very early appearance, and I have not noticed that they are suffering any ill effects from the position. I hear, however, many complaints concerning Sweet Violets—mainly that after a season or two they do not flower. Indeed, it is the exception to hear a good report of them, so I am going to set down what I have learned of their necessities.

First, a sheltered position, then a soil that would grow good vegetables—not too gorged with manure or you will have all leaves and no flowers—but mixed with a little *old* manure or material from a decayed compost heap, or leaf-mould from the woods. The end in view is to make the soil cool and fibrous and of a moderate richness. The crowns are set ten inches apart each way and pressed firmly in. For the first year, save for watering and weeding, they may be left to themselves, but thereafter, each spring after flowering, the plants should be dug up, pulled apart and replanted, the ground having been well dug and reënriched. The newly set plants must be guarded from drought, nor should they be allowed to send out runners, as all the energy of the plant must be directed toward forming a fine new crown. Early in the autumn I usually go along the path with a basket of leaf-mould, scratching in this good food about the crowns; and in the fall we draw over them a few leaves. If transplanting is neglected for a season no great harm is done, but old and matted beds of Violets will no more bear well than will Strawberry beds in a like condition. And the trouble involved is little enough for a reward so certain and so delicious.

Single varieties of V. odorata are the best for outdoor culture, Princess of Wales and California being especially recommended. My own are a mixed lot from Mr. Gillett—purple, mauve, pink, and white. They often give a few blossoms in the autumn and Miss Jekyll in "Wood and Garden" speaks of Czar Violets flowering in her garden in October on stems nine inches high!

It is strange that Viola odorata should be so very sweet and other members of the family almost, if not entirely, devoid of fragrance. Viola blanda, the little white Violet that we occasionally find growing by the roadsides in the neighbourhood of some old garden, exhales a little of the true Violet fragrance; Viola canadensis is faintly sweet, but it is a cool lemony scent, very unlike what we have come to know as "violet." Of course the Pansies have their own peculiar bouquet, warm and gently stimulating, but quite different from that of any of the true Violets.

Viola blanda flowers in my garden very soon after the Sweet Violets. It grows thickly along a little woodland path, in company with Ferns and Periwinkle and Star-of-Bethlehem, and when the white blossoms are out in force their sweetness is perceptible at quite a distance. This is a little home Violet very good to have in the garden. It sprigs the garment of the spring in many parts of the East, from Maine to Georgia, forgathering in low meadows and dampish woodland places, but seemingly able to put up with much dryer conditions in the garden. It is a pleasant companion along a shady walk, and it is one of the friendly plants I like to grow near my garden seats. In the lovely garden of Crow's Nest near here my friend grows Viola blanda over the heads of a large bed of Scillas that spreads about under a tree, and when the blue and the white bells are all chiming and the little white violet faces among them all agog, there is something worth going far to see on a sweet April day.

From this friend I had a most handsome and conspicuous white Violet, whose name I do not know and which she received nameless from a friend in Kentucky. We call it the Kentucky Violet, and it excites a good deal of admiration at the time of its flowering. It is the largest true Violet that I have met with, white, but heavily lined on all the petals with deep blue, and carried on long stems well above the heart-shaped leaves. It is handsome, indeed, but a furious seeder, and its increase has to be summarily dealt with.

A little like it, but smaller, and less a beautiful pest, is the albino form of V. septentrionalis, which may be had of several dealers in native plants. There are numerous other white Violets indigenous to the East but only one more that I have thus far gathered in. This is V. canadensis, that ranges widely from New Brunswick to Saskatchewan, throughout the Rockies and west to Arizona, as well as over much of our East country. It is one of our New York Violets, but though I have always had an eye out for it when loitering in high places, I have never had the luck to find it. My plants were the gift of a friend whose quest was more successful. It is a very charming and sprightly Violet, tall, with leafy stems and flowers borne on short stalks from the axils of the leaves. Its proper time for blossoming here is early May, but if you should be wandering about the garden on one of those golden November days when the year is taking a backward look, quite likely you would come upon the Canada Violet blossoming madly among the dry leaves. Often the snow comes, too, and

finds it thus, laughing gallantly in the face of certain disaster.

A good deal like V. canadensis, but larger throughout and a more robust and pushing plant, is V. rugulosa, which has a wide range through the North and Middle West. It is a handsome white-flowered Violet, but has an aggressively creeping root-stock and must not be allowed among the choice and sensitive, for it quickly forms wide colonies of its own and small tender things go down before its vigorous advance.

It is not worth while to clutter the garden with the pretty Violet riff-raff of near-by woods and waysides. Many are violent spreaders and quickly seize upon space that might better be devoted to the choicer species. Of these choice kinds, preëminently, is the Bird's-foot (Viola pedata). This shy and lovely plant has long been the despair of gardeners on both sides of the water who have sought to lure it from its wild free life to one of coddled security in the garden. In its chosen haunts it apparently gives its whole mind to being lovely and lavish, but transplant it to the garden, surround it with every care and consideration, and it embraces death rather than continue in the alien environment. It grows naturally, we know, in sandy places, sometimes in full sun, again beneath Huckleberry bushes and other heathlike things; and I have a childhood memory of a wooded hillside near Baltimore where we used to go in the spring to look for Johnny-jump-ups, as we called them.

From this apparent indifference to a special type of

surroundings we surmised that the Bird's-foot was a plant easily to be dealt with, and so keen is the desire of gardeners to possess this beauty of the race that thousands are brought from the wild every year and set out in gardens where they ultimately perish; and gardeners save their faces by characterizing it as incorrigibly wild, as an incalculable imp, and the like, and the yearly sacrifice goes on.

But now we are being taught how wrong we have been, how cruel to this most beautiful and distinct of all our Violets, and if the wholesale sacrifice continues, it is because of carelessness and heartlessness, and not because we do not know better. The Bird's-foot Violet is one of the plants that we now know to require an acid soil, whether in sun or shade; that it cannot long persist in any other, and while it may continue on for a year or so in the ordinary garden or rock garden, it will all the time be slipping from our grasp, and a spring will come that knows it not.

But give it its heart's desire and it will remain most graciously, increasing, raising up seedlings, blossoming with the same freedom that it shows in a wild state. I have a small colony now entering on their third season in a bed of sandy, acid soil in the rock garden, and so happy and hearty are they that even where beset by wandering bands of Sedums and Forget-me-nots they are pushing up their "Velvets" strongly through the tangle of alien bloom and foliage.

Most striking is the bicolour form, designated by some botanists as the type, while the clear lavender

variety is called V. pedata linearíloba. The rare white-flowered form came to me as a gift last autumn. It is blossoming now, delicately, in an aloof way, as if unaware of the small roisterers in its neighbourhood, and though I know it in my heart to be far less lovely than either of its sisters, I am inordinately proud of this elegant being. As is the gracious way of so many Violets the Bird's-foot gives a second blossoming in the autumn, and these late, always unexpected flowers are far more precious than the spring profusion. A spring flower born in the autumn seems always like a concession of the lenient year to our reluctance to let the summer go —a living reminder that another spring will come.

From my friend in the Northwest has come V. pedatifida, resembling our Bird's-foot somewhat in its foliage, at any rate. I have not yet seen the flowers, nor do I know if it requires the same condition of soil acidity, but time will show for I have set a few plants out with the pedatas and others in a little bed of ordinary sand and humus. We have unhappily so little to help us where these native plants are concerned, that we must be continually experimenting.

One early-flowering yellow Violet should be in our gardens where shade and protection from strong-growing plants may be given it. This is V. rotundifolia, a woodland species of the East, and there are other pretty yellow-flowered kinds that we should know and grow. From Mr. Purdy in California I have V. chrysantha, with finely divided foliage and large yellow blossoms, and I hear of V. glabella of the Rockies in Colorado as

a beauty. One would have also V. biflora, a lovely yellow-flowered species of the Old as well as of the New World, that runs about in cool hollows making a charming, flickering radiance amidst its round leaves. This also is found in the Rockies. From California also I have V. ocellata, tall and leafy-stemmed like canadensis, with lilac or creamy Violets whose two upper petals are deep purple on the reverse, and also some others, among them a little pale pink one, of whose name I cannot yet be sure.

Native Violets are not easy to obtain. Mr. Gillett has a few, Mr. Kelsey and Mr. Robins also, of Eastern species, and Mr. L. E. Williams of Exeter, N. H. Mr. Andrews should be able to send us Colorado forms, Mr. Purdy some of the Californias, Mrs. Albert Obergfell those that inhabit the Northwest; and Mrs. Susan Stoker, Cowichan Lake, B. C., offers a most interesting list of seeds, including V. adunca, V. glabella, and others. But we have yet to build up a respect for native plants sufficient to create a steady demand for them. Only then shall we be able to obtain them readily. I advise all who feel an interest in native Violets stirring within them to send to the Vermont Agricultural Experiment Station for Dr. Ezra Brainard's magnificent monograph, "Violets of North America" (Bulletin 224), and I do not hesitate to say that none can gaze upon the beauties therein revealed and remain indifferent to the charms of our native Violets.

Of European true Violets I have but two sorts, both raised from seed. One is V. elatior, a form of the Dog

Violet (V. canina), with tall leafy stems and beautiful large lavender Violets, very soft in tone. The other is V. arenaria rosea, a pretty little tufted plant with rounded leaves and a great profusion of bright rose-coloured blossoms on short stems. It is found in sandy places in Provence and in the Alps of Piedmont, but has proved itself quite hardy in my garden through two cold winters. This is a distinct and charming Violet.

The Pansy-Violets are more showy than the true Violets and are very easy to grow—for the most part. Also, they are readily come by, for it is no trick to raise them from seed, and seed is to be had without trouble. Many, however, are biennial—or at least behave so in our climate—and must be raised from seed yearly if we are to keep them with us. In gardens not too meticulously "cleaned up," they are usually able to attend to this matter for themselves, and in the rock garden this is very often the case. But where, as with the various forms of Viola cornuta, they are wanted for carpeting rose beds or edging borders, they must be annually raised.

All the forms of Viola cornuta are delightful and may be put to innumerable uses in the spring garden. Papilio is, perhaps, the most wholly charming, a lavender and cream flower, large, and produced in the greatest profusion. It is among the first flowers of the garden to bloom, making splendid patches of gay colour often as early as March, and it is seldom out of bloom until, with the most intrepid, it finally lowers its colours before the advance of ice and snow. With the handsome

hardy Wallflower, Cheiranthus Allioni, and white early Tulips, it makes a most lovely border edge. V. C. G. Wermig is a rich purple sort—lovely for carpeting beds of Hybrid Tea Roses—that blooms all summer if the faded flowers be occasionally removed to prevent seeding. Other highly desirable forms are alba, rosea, Signs of Spring, Profusion, and Cyclops.

Almost as early to flower as Papilio is the yellow mountain Violet (V. lutea), that makes its corner of the rock garden very gay for several weeks in late March and April and gives a scattering of bright bloom throughout the season. V. gracilis is a charming Greek, from Mt. Olympus, that belongs in sunny places on the rock garden where it spreads beautiful breadths of purple colour to the delight of all beholders. Large-flowered forms of it are Lord Nelson, reddish in tone, and Purple Robe; but the type is, to my thinking, far more enchanting. V. bosniaca is a most engaging small-flowered Pansy, bright pink and white, and very floriferous, but not at all permanent, though it self-sows in a modest sort of way.

All these Pansy-Violets are of the easiest culture, asking nothing but a free soil and plenty of sunshine, and no flowers contribute a more charming gaiety to the garden. Each spring I sow a dozen packets of the different kinds and, though many hundred little plants result, there are never more than we are glad to have; moreover, all sorts of interesting matrimonial alliances are contracted, and we are treated to many a glad surprise in the way of delightful babies.

There is an old Spanish proverb to the effect that a loved child has many names. This is certainly exemplified in the case of the Johnny-jump-up, or Lady's Delight, as I used to know it, that has for centuries been a loved garden child and wears a notable string of pet names, "like medals bestowed by the gratitude of men." It is Spencer's "pretie Pawnce," Shakespere's "Love-in-idleness," and to various other admirers—Trinity-flower, Heart's Pansy, Pink-of-my-Joan, Cul-me-to-you, Three-faces-under-a-hood, Kiss-me-behind-the garden-gate, None-so-pretty, Cat's-faces—and so on, all testifying to the affectionate intimacy in which it has so long been held.

If it were not for the happy circumstance that to the heart of some gardens the fickle wind of fashion does not penetrate, many simple, old-fashioned flowers would be lost to cultivation—among them our Johnny. I remember how these flowers with their bright, saucy faces crowded beneath the shrubs and along the trim garden paths of my grandfather's garden in Massachusetts where I spent so many happy days as a little girl. I thought them the best playmates in the garden, always alert and clever, lending themselves readily to innumerable plays. But when I wanted them for my grown-up garden none were to be had. I lamented in print and Mr. H. S. Adams, chancing to see my plaint, generously sent me a fine lot from his Connecticut garden. And now I have hundreds, and have given away hundreds, and still find them the best company in all the garden.

Collecting Johnnies has turned out to be a highly entertaining and profitable garden sport, for there is great diversity among them. I had from Mr. Adams, purple and yellow, maroon and purple, maroon and white, and blue and purple sorts. Then from seed I secured Mr. Bowles's little black imp, sometimes known as Viola nigra—velvet-black, and the smallest Johnny I have seen—and, very curiously, coming true from seed even when running among the parti-coloured forms. Mrs. McKinney sent me a tiny bright yellow one, and from a garden in Germantown—city of many friendly gardens—came to me recently a bright blue-and-fawn-coloured sort, most unusual, and a little yellow-and-white one, seed of which the donor said she had gathered in Switzerland.

And when I visited Mary Wright's delightful nursery garden at Logan, Pennsylvania, at Thanksgiving, it was all a-flutter with saucy Johnnies, among which I saw some lovely kinds, one in particular whose gay dress was of periwinkle blue and buttercup yellow.

Mr. Adams wrote me that he had gathered Johnny-jump-ups in his Connecticut garden during every month of the year, and I have found them in mine during all save January, which is a good enough reason in itself for making welcome and cherishing these little, clever creatures.

Johnny-jump-ups are, however, never to be found in spick-and-span gardens, being considered by up-to-date gardeners and by nurserymen as of no account at all. But I never visit an old garden, or a friendly new one,

that I do not spy about in search of their roguish faces; and if I find them I know that here dwells a gardener with whom I shall linger hour after hour, unmindful of lunch time, of afternoon entanglements and other trivialities, lost in that pleasant intimacy of converse always possible between those who love and give sanctuary to this humble foremother of our splendid modern Pansy—blithe Johnny-jump-up.

CHAPTER VII

A Lay of Little Bulbs

Desires,
Little determined desires,
Gripped by the mould
Moving so hardily among
The earth, of whose heart they were bred.
—John Drinkwater.

THE topic of small bulbs is of such varied and infinite fascination that an entire book would not suffice to contain one's enthusiasm, while a chapter can give but a flash and a sparkle of all the deliciousness they promise.

Assuredly the flowers that spring from little bulbs—Snowdrop, Crocus, Scilla, and the rest—are the most beloved of all the garden's store. Perhaps the fearlessness of their coming—spurning disaster—is the source of our tender feeling for them. Before the snow has been frightened away by a white-clothed branch, while yet the winds wield a bitter lash, these small audacious beings appear, bringing their offerings—an azure bell, a golden trumpet, a crystal chalice, an amethyst globe—treasure, indeed, to find strewn upon the stark earth when one has looked to find naught but barrenness and wind-lashings.

The Snowdrop is always the first, the most faithful, in my garden, appearing, unless the snow lie too deep to

let them through, before mid-February. These we should like to plant by thousands but now, alas, can we but get a handful to tuck in about the feet of the Pussy Willow or near by the gold-starred Jasmine we are deeply thankful. Snowdrops love a shaded bank, or to follow a woodland walk, clustering thickly about the boles of the trees, and if the situation be open to the south so much the earlier will the frosted bells make their appearance. We shall want them in the rock garden, too, in leaf-mouldy corners, sheltered and warm, with some little creeper overhead to preserve their pure beauty from spattering mud. Galanthus nivalis is the kind most commonly grown, but the great Elwesii is perhaps the best of all Snowdrops, and there are other sorts, G. Fosterii, the later-flowering G. plicatus and G. robustus—all keenly desirable, no doubt, could we but get them.

Given a warm and sheltered location the Siberian Squill (Scilla siberica) blooms before the Snowdrops are gone. It burns the bluest flame of any flower I know, save some of the rare Gentians I have seen enthroned in Mr. Lown's wonderful garden; a trifle hard, this blue, and leaving nothing to the imagination, but none the less splendid, and welcome in the spring garden where strong colour is at a premium. Scilla bifolia, a European form, bearing five or six blue bells to the stalk, is said to bloom as early as S. siberica, but this I have never had under my eye. Of S. bifolia there are both white and rose forms, and a very lovely white variety of S. siberica.

The lovely English Blue Bell or Wood Hyacinth is taller and blooms later. This is S. festalis (S. nutans) whose stalks of drooping bells colour whole stretches of English woodland in May, and fill the air with a delicate but delightful fragrance. As with all the other Scillas the rose and white forms are less appealing than the blue. S. campanulata (S. hispanica) too, is later flowering, sending up stout stems to a height of twelve inches, carrying a pyramidal arrangement of lavender-blue bells—white also—that open about the middle of May in my locality. The Scillas all love a shaded position, where they increase rapidly, and will grow happily beneath Pine and Hemlock trees, which is true of but few bulbous plants.

The Snow-glories are like exquisite bits of enamelwork, so like porcelain are they in substance, so lovely in design. They are cousins of the Scillas—these Chionodoxae—and like them deal in exquisite blues. Also they are hardy and friendly, and left to themselves in some corner of the rock garden or shrubbery, safe from the ill-starred scratchings of the by-the-day man, will increase rapidly. I am cherishing a few bulbs of the species Luciliae that I was able to salvage from the old garden, and hope one day to have a fine lot shooting up among the white Hepaticas on an eastern slope of the rock garden. Chionodoxa Luciliae is heavenly blue in colour and has a white star at its heart. Its variety, sardensis, wears the blue of Gentians.

Also allied to Scilla is Puschkinia, sometimes known as the striped Squill. These are very dainty and charming, having a modest colour scheme of blue and white—

white or very pale blue bells striped with deeper colour—and grow only about six inches tall. They flower in March and April and like a sheltered corner in sand and leaf-soil, where they may be left in peace to increase their kind, and this they do with moderation and without haste.

Almost as early as the Scillas and Snowdrops bloom some of the wild Crocuses. To-day, March fifteenth, I have found C. Imperati and C. Tommasinianus flowering through the snow, though the ground has not once been exposed since Christmas, and there has not been one encouraging day. If there had been, these lovely bubbles would have been blown through the earth a week or more earlier. C. versicolor and C. Sieberi are also showing colour and a single mild day would bring points of flame from the midst of the little bundles of green spears that herald C. susianus. These wild Crocuses are of a delightfulness quite inexpressible, and often bloom a full three weeks before the fat Dutch varieties—indispensable, too—make their splendid appearance. Here is a list of them that no one owning a garden, but most especially a rock garden, should be without. They are fragile, delicate, exquisite in appearance, and quite sturdy and enduring in fact. They love sunshine and the common soil of the rock garden, gritty and nourishing, and they increase with gratifying rapidity, so that they are a most profitable investment. There are a great many of these treasures to be had, but the following have proved hardy and sensible in my garden:

C. Imperati.—In lucky seasons you might have this in February. A lovely pale rosy lilac bubble, buff on the outer petals, with

burning stigmata. Mr. Bowles speaks of a white variety. Increases freely.

C. Sieberi.—A Greek beauty of distinction, displaying great daring in venturing out in the cold. A sturdy kind with an orange throat to enhance its purple segments. Flower opens wide and star-like. Orange stamens.

C. Tommasinianus.—Its flower is a slender, pale mauve vase. One of the most intrepid and hardy though it appears fragile, and as if a too frolicsome breeze would carry it off into the blue.

C. versicolor.—More sturdy in appearance, and variable in colour, the segments feathered within and without with deeper violet. Thrives like a weed.

C. biflorus.—A lovely white bubble, veined with deep colour, vigorous, and given to rapid increase where it is happy. Honey-like fragrance.

C. chrysanthus.—Golden treasure. Flowers in March and is one of the most delightful.

C. susianus, called the Cloth of Gold Crocus, opens like a splash of hot light on the brown earth. It is one of the best—sturdy, brilliant, early-flowering. The outsides of the orange-coloured segments are brown, the cup small and opening out flat like a star. Be sure to have this. If you can allow yourself more of this treasure, there are etruscus, banaticus, vitellinus, aureus, Korolkowii and many others, all flowering in February and March, all keenly desirable. Many seed themselves about like cheerful weeds, increasing their numbers rapidly and coming up in little bands in the most unexpected places. In the old garden C. Sieberi seeded all through a broad mass of Androsace Chumbyi, and the purple blossoms above the gray rosettes were a most pleasant sight. Here in the new garden I saw to it that this association was repeated, planting the corms about the mats of Androsace, thus not only providing a lovely setting for the Crocuses but securing a double crop of blossoms from the same space of earth.

All these little Crocuses that flower when the weather is apt to be wild and a bit spiteful, spattering mud in all directions and beating down frail blossoms, should have a protecting mat of some small creeper planted above their heads. I have white-flowered Thyme above

C. Imperati, Veronica repens above several others, and Acaenas, Hypericum reptans, Arenaria caespitosa and A. balearica, Antennaria dioica, the tiny Linarias, Drabas, and other small things all used as shields, not only for the Crocuses but for other small bulbous things.

And where the spring-flowering Crocuses are grown, the autumn-bloomers should also be gathered together; for these, too, are of the year's most precious offerings. One never grows accustomed to the appearance of these flowers seemingly at the wrong end of the year. C. speciosus is a great, vigorous beauty, fragrant, very close to blue in colour, and rapid of increase. C. zonatus is a smaller love, but so far as my garden is concerned, just as hardy and enduring. These two bloom late in September and early in October, and it is just as necessary as with the spring-blooming sorts to give them a ground-cover to preserve them from the desecration of flying mud. These two are all of the autumn-flowering sorts I have grown, but on my list for the coming autumn are the species iridiflorus, nudiflorus, sativus, cancellatus, pulchellus. These will give me Crocuses until December, and cancellatus flowers in early September. Plant the corms two or three inches deep in light gritty soil and sunshine. And remember that the terrible quarantine enactment has not yet closed down upon Crocuses and therefore we had better make hay while yet this ray of sunshine is allowed us.

* * * *

Muscari and Hyacinthus come a little later and decorate the pale spring world with patches of delicious

blue—tender, gentle blues, not piercing and sharp like that of Scilla siberica, but counting for just as much in the sum of the season's beauty.

Of these the little Grape Hyacinth Muscari botryoides is probably the first we shall meet. This beloved little friend gets out of its brown bed to hear the early bird songs, not so early as the Scillas, but not far behind them, in late March or early April in sheltered locations, pushing its wedge of little blue beads up through the autumn growth of narrow leaves. Its variety, Heavenly Blue, is a beauty of more substance, and fragrant, as well, and its only drawback in the rock garden is that its long leaves lie about over the other plants in rather an untidy and discommoding fashion. This form is best kept to the hem of the shrubbery, where it may occupy all the space it desires. In the old garden I boasted a great mass of Heavenly Blue mingled with the little wild yellow Tulipa sylvestris, skirting a group of Persian Lilacs, and the bright blue and the warm yellow made very gay colour indeed for this restrained season, and gave forth a delicious blend of scents as well.

These Grape Hyacinths multiply rapidly, both by means of seed and offsets, so if we are so fortunate as to secure a handful, and take care that the babies are not destroyed, we may expect an increasing pleasure year by year.

Muscari racemosum is good to have if you can get it, having narrow leaves that lie flat upon the ground and fatter wedges of close-set beads. M. comosum and its variety, monstrosum, are rather quaint monstrosi-

ties, not beautiful, but emitting an agreeable fragrance from their strangely cut and twisted dark-hued blossoms. It is over large for a small rock garden.

Hyacinthus amethystinus and H. azureus are lovely and endowed with a gentle grace. H. amethystinus grows a slender stalk, six or eight inches tall, loosely hung with open, pale blue bells, whose weight causes the stalk to droop pensively. It blooms in May, and in a sheltered situation, along a woodland path or behind a protecting rock on the cool side of the rock garden, increases obligingly. H. azureus is a small, dignified creature, inordinately proud of its diminutive pyramidal spike of close-set deep-blue bells which it sends aloft very early in the year. It is a charming thing to cherish in sheltered, sunny locations, and is quite hardy.

* * * *

Last year on the thirtieth of March flowered the first of my wee Daffodils—this was a few days earlier than usual—a perfect Trumpet Daffodil three inches tall, bright golden yellow, quite self-sufficient, and entirely equal to the demands of this early occasion. This is Narcissus minimus, smallest of its great race, and perhaps the most enchanting, though every member of the family is gifted with such charms of spirit and of person as to make choosing among them a matter of great difficulty.

But the small kinds are priceless for the rock garden, and it is only among its protecting hills and valleys that these little lovely creatures may properly be cared

for and enjoyed. All the following kinds should be planted in as great numbers as can be managed—one could never have too much of such rare gold.

Narcissus minimus.—Tiniest of all, and a native of Spain. It loves a south aspect in sandy leaf-soil that is damp in spring when it starts into growth. Increases freely when made comfortable.

N. minor is a charming miniature Daffodil of the same form as maximus, its bright yellow perianth lightly twisted. It grows about six inches tall and flowers early. It is not a difficult sort, accepting the ordinary conditions of the rock garden cheerfully.

N. nanus.—A bright yellow, graceful variety growing six inches tall. This sort is very difficult to procure.

N. lobularis.—A small, dainty bicolour Trumpet Daffodil growing to a height of about eight inches. It requires to be well established before it will flower.

N. W. P. Milner.—A most cheerful and free-flowering sort, almost white, and growing to a height of about ten inches. It is valuable for the bolder parts of the rock garden, among Aubrietias, Phlox subulata and the like. It blooms the first week in April. Light shade.

N. moschatus, of Haworth.—I have only three or four bulbs of this lovely and fragile white Daffodil of the Spanish Pyrenees and surround it with every care and attention in a cool, lightly shaded corner of the rock garden, in soil that is light and fibrous with leaf material. My three or four bulbs have increased from one so I know it to be happy and that it has in store for me more of its delightful kind. The flowers are very pale and droop upon the stems as do the larger Snowdrops.

N. triandus albus, the Angel's Tears Daffodil, was "found by the late Mr. Peter Barr in the mountains of Portugal and Spain, growing in hard, firm, fine gritty soil, sometimes in the narrowest fissures of granite and slatestone rocks." This is a fairy Daffodil: a little slender thing with grass-like leaves and a cluster of small creamy blossoms drooping from a seven-inch stem. The cup is rounded and the perianth reflexed as in a Cyclamen. The rock garden is the only safe place for it, and it likes shade, a gritty soil, and a very well-drained position.

N. Queen of Spain is a wild hybrid of triandus, growing taller, ten

inches, and with clear, warm yellow blossoms, deliciously fragrant, the cup long and rather slender and the perianth reflexing as in the type. It is a most lovely and graceful variety and not at all difficult to grow, whether in the rock garden or in some lightly shaded grassy place. Blooms mid-April. Lovely beside the rock-garden pool in company with Forget-me-nots.

N. cyclamineus.—This is said to be the earliest flowering Daffodil, but in my garden minimus is always out before it. It is a quaint midget with stems four inches tall carrying bright yellow blossoms, the trumpet long and tube-like and delicately fluted, the perianth sharply reflexing. It does not object to sunshine, but it craves a dampish sandy soil with an admixture of peat.

N. Bulbocodium, the Hoop Petticoat Daffodil.—There are several forms of this most delightful and fairy-like species in all of which the widely flaring cup—like a little hoop-skirt—is the predominating feature. They like a dampish sandy soil with peat or fibrous leaf-soil, and I find them happy on an east slope of the rock garden. My little bulbs are increasing nicely on the same ledge where Dr. Wherry's Sedum pulchellum—a delightful thing and quite different from pulchellum of the trade—finds itself at home.

N. Bulbocodium citrinus, of the Pyrenees, has pale flowers. N. B. monophyllus, native of Africa, is not hardy with me, though I should dearly love to enjoy its white blossoms. N. B. conspicuous has larger flowers and bright yellow. And I have a smaller yellow-flowered variety that blooms earlier than the others. Their height is six inches and they bloom about mid-April. They make an autumn growth.

N. gracilis.—A charming little rush-leafed Daffodil with a cluster of small flat-cupped yellow flowers on its ten-inch stem that are most delightfully fragrant. It is the last of the race to bloom.

N. juncifolius.—This miniature rush-leafed form I have not yet been able to obtain. It grows only three or four inches tall and carries bright yellow blossoms about the size of a Buttercup. It is of the Pyrenees but said not to be as hardy as it might be.

N. tenuior, the Silver Jonquil, is another small delight that I am seeking. It is said to grow nine inches tall, and to carry several blossoms to a stem, the cup sulphur-yellow and the perianth delicate cream.

It must be remembered by those who plant these small, wild Daffodils that the bulbs we receive are largely collected stock and therefore all will not be of blossoming size. It does not mean failure if none bloom the first season after planting; it merely means a great delight deferred for a few months. My own experience has been that these little bulbs should not be planted very deeply. Two inches of soil over their heads is quite sufficient.

* * * *

Those who know the Tulip family only by its gorgeous representatives in the beds and borders of the ordinary flower garden have yet to learn much of the fascination and distinction possessed by this great race. To some of us who know them the wild Tulips of Central Asia, of Italy, of North Africa and elsewhere, so diverse in form, so sprightly and unspoiled, are more interesting and alluring than the splendid border forms.

The two admirations need not conflict, however, for the wild Tulips are not suited for conventional planting, but must be given special care and conditions in the rock garden or in sheltered sunny corners where they will be safe from molestation by misguided zeal. The rock garden is the ideal home for them, but they may be grown along the edges of shrubs, or in narrow beds where they will not be overrun by strong-growing plants. It is generally recommended to lift the bulbs yearly, storing them in a dry, warm place, and replanting in November. In this country, where the bulbs are likely

to receive a good drying in summer, I think this is not necessary. In some cases, at least, I can testify that left in the ground from year to year they increase rapidly and flower with unabated generosity.

Tulips are fond of lime and where this is present in the soil, they are not exacting as to its texture; but I have found the wild forms generally well pleased with the gritty, nourishing mixture of the rock garden, where they also enjoy a warm exposure with abundant sunshine. There are a great many wild species, but the following are enough to open up a whole new world of enjoyment to any who will try them:

T. Batalinii.—A most lovely variety with pale yellow, pointed blossoms, deliciously fragrant. It flowers early in April and is hardy, but with me it has not increased.

T. Clusiana.—A charming thing familiar at least to those who attend the winter Flower Show in New York, where it is usually to be seen forced in pots. The small pointed flower when closed is bright rose-colour, but within one finds gleaming whiteness and a purple base. This has been perfectly hardy with me but it requires the warmest spot on the rock garden. Its height is only about eight inches and it usually blooms late in April. Increases, but slowly.

T. dasystemon.—Perhaps my favourite; a small wonder of a Tulip, its leaves lying flat upon the ground like a star-fish at their first coming forth, its charming fragrant blossoms opening wide, butter yellow and white, carried on stems not exceeding four or five inches in height. It blooms about April fifteenth. It is from Turkestan, and appears to be increasing here on a warm slope of the rock garden in a most gratifying fashion. I read of it in an English periodical as "sowing itself all over the place," and if it will do that in England it can certainly be counted upon as a permanent resident here.

T. Greigii.—This splendour is for the boldest situations of the rock garden where its huge vermilion cups will be in scale with its

surroundings. The foliage is grayish and curiously marked with purple. It craves a hot slope in light soil. I have not had this species long enough to know if it will increase under cultivation, but it is at any rate hardy in my climate.

T. Kaufmanniana.—This beautiful species is the only wild form that is fairly generally cultivated. It is usually pale primrose in colour with great flames of carmine suffusing its broad petals, and there are other forms. It opens its flower widely like that of a Water Lily, to which it is often likened. I have not grown it in the rock garden, but in the ordinary garden, while it has remained from year to year, it has not increased. It blooms with me usually the first week in April.

T. linifolia I have not grown, but Mr. Farrar calls it a "little wavy-leafed dwarf star Tulip of blood-scarlet," which sounds very alluring.

T. persica.—From Persia comes this lovely dwarf that I am able to pronounce hardy, reliable and permanent in the rock garden—a real treasure to be enjoyed year after year with no trouble at all once it is settled in a warm corner, sunny, and in dry, gritty soil. Its leaves twist about upon the ground in a curious manner and the flowers that are borne two or three on a four-inch stem, are hot yellow, flushed on the outside with bronze, and very fragrant. Do not miss it. Flowers in early May.

T. praestans was tucked away in my rock garden only last autumn. Its colour is said to be a curious light scarlet and it carries several blossoms on a stem. The foliage is light green and slightly downy. (Bloomed late in April—one of the most distinct and beautiful of the wild Tulips. Bokhara. It undoubtedly requires a hot situation.)

T. saxatilis from Crete has been, with me, very shy of its blossoms, too often sending up a broad, solitary leaf which is its way, and the way of all Tulips, of saying, "No flowers." But I think the trouble has been my mistake in not giving it a sufficiently hot and dry situation in light and stony soil where the bulbs would have every chance of ripening thoroughly. The occasional blossoms make one desire to see more of them, for they are bell-shaped and of a lovely soft rose with a yellow base, and usually come two to a stem.

T. Sprengeri.—This is the latest of all Tulips to flower, opening its

long, pointed, scarlet flowers toward the end of May. It is brilliant and beautiful, and is one of those kindly sorts that sows itself about, springing up in odd corners in the most delightful and surprising manner.

T. sylvestris, the wild British Tulip, is another having this endearing habit. In the old garden it crept from its bed at the feet of the old Scotch Briar Rose out into the gravel path where it bloomed as happily as in the good soil of the borders. My fifty bulbs soon became hundreds and I think none of my floral possessions gives me so much pleasure for so little trouble. It has gray pointed leaves and bright yellow blossom opening widely and nodding upon the slender ten-inch stem, and is warmly fragrant. I have a form called sylvestris major with taller stems and larger flowers, but it is not to me as lovely and as appealing as the common kind. If I could have but one Tulip in the garden it should be sylvestris; it is so sweet, so friendly, and so generous with its increase. A rock garden is not required to make it safe and comfortable; any warm corner where the bulbs will not be raked out of the soil will do, but it loves the eye of the sun and a good light soil, and to be noticed. It is delightful to bring into the house. It flowers toward the end of April, but takes a year to become established before flowering.

* * * *

Tucked about in the garden I have patches of Fritillaries, white and the quaint checkered sort; clumps of the early-flowering Snowflake, Leucojum vernum, and a dozen or so of bulbs of the beautiful and amazing Iris reticulata that I have seen more than once flowering above a carpet of snow. All these have grown woefully scarce among us; they are to be cherished to the utmost, divided and shared that such innocent and dear delights may not become a memory only and finally fade entirely from our knowledge. They can be raised from seed also and one with a little time to spare could not do

better than thus to increase the dwindling store of treasure. Raising these small bulbs from seed is a slow process, for several years must elapse before we receive the reward of flowers, but it is perfectly possible, and any amount of labour and patience will be cheerfully given, I am sure, before we resign ourselves to doing without pleasure so innocent and uplifting.

WESTERN BULBS

In the soil of our West country lie bulbs of which we, in the East, as yet know little. Here and there the curious and venturesome are making trial of them with varying results, but thus far little that is definite has been arrived at. Most of them grow under conditions wholly different from any that we can provide, and it may be that they can never be more than curiosities in our Eastern gardens; but it is too soon to say this. I give my own experiences with them, not because I have met with any signal success, but because the more evidence that can be brought to bear on their behaviour under different aspects, the sooner shall we be able to form accurate conclusions concerning their usefulness as garden flowers in the East.

I have great hopes of the Erythroniums, or Dog's-Tooth Violets, for all the news I can collect of them seems to point to their willingness to remain among us without too much coddling and fretting. They are for choice cool corners on the rock garden or lightly wooded places where they will not be overcome by strong-growing plants; and the soil they are said to

prefer is one loose and free with grit and fibrous with rotted leaves. My bulbs got no such special preparation, but were hurriedly tucked away, because of other pressing affairs, in rather a dank corner where the soil was on the side of heaviness, and there they have been left for several years. Yet they have prospered, springing each year in their inimitable, sprightly fashion, and showing some increase. The kinds I have are:

E. californicum, rich yellow with orange markings, and clearly mottled foliage, and often bearing several flowers to a stem.

E. Hendersoni, a pale lilac charmer with a purple throat, bearing its blossoms in a fountain-like cluster, and having its leaves distinctly marked. Blooms about April fifteenth.

E. Hartwegii, from the foothills of the Sierra Nevada Mountains, is cream and orange, and lovely, flowering about May first.

E. grandiflorum has green leaves without mottling and bright butter-yellow blossoms of great charm. There is a fine white form of this.

E. californicum, White Beauty, is a lovely creamy white variety, dark banded at the throat and borne four or five to the stem.

These are not by any means all the kinds, and any one reading Mr. Purdy's catalogue will find many others to tempt him. To be effective they should be set close together, but two or three inches apart, and three inches under the soil; and they are so delightfully inexpensive that one may indulge one's fancy for a grand display—a great relief after the way in which we must economize over the little bulbs that the quarantine enactment has done its best to put beyond our reach. I recommend the Western Erythroniums for Eastern gardens, and think there will be no disappointment

Geranium sanguineum album, a fine plant for rock garden or border

Johnny-jump-ups from Germantown

A path through the rock garden in early May. Second spring

where they are given fair culture. With the type known as revoltum, I have not been so far successful. Many of the bulbs failed even to send leaves, to my impatience, and none flowered. But it is too soon to announce them as difficult, for I have made only one planting, and that in a situation which I now believe to be unsuitable.

* * * *

The West has in its keeping also numerous Fritillaries, of which my experience is yet very narrow. Mr. Purdy offers three kinds of which I can say nothing, but years ago I entertained for several seasons a small bright creature called recurva. I got it from Holland, knowing naught of its natural abiding place, but attracted by the description of its scarlet bells. Tucked into a flower border, it lingered on heroically for several seasons, beset by hearty neighbours, but finally gave up the fight and there came a spring that knew it not. This I believe to be a Californian, and fit probably only for careful culture on the rock garden. But friends in the Northwest have sent me the variety known as Bronze Bells, F. atropurpurea, a quaint and rather delightful species that appears to be hardy and not too troublesome. Its stems are a foot tall and the little bells are light yellow, streaked and spotted with brown, and borne in a loose cluster on the leafy stems. As Miss Armstrong says, in "Western Wild Flowers," there is something weird in the appearance of this sober-toned flower, but it is none the less attractive. My friends

write me that it grows in sunny places in soft sandy soil, and thus I have surrounded it in the rock garden, hoping to make it feel at home. It has proved that it can stand our winters, but I cannot yet say if it will like the Eastern climate well enough to want to settle down and increase.

F. pudica is an American Fritillary that is thought very well of across the water. Mr. Robinson says: "It is one of the most charming of hardy bulbs, and takes the place among yellow flowers similar to that of the Snowdrop among the white ones." This makes one desire very much to have it, but so far I have not been able to procure any of the bulbs. It is described as but six inches tall and fragrant, and is said to crave a warm situation in sandy soil.

* * * *

A year ago last autumn I planted a number of different kinds of Brodiaeas, and while they came through an extremely inclement winter and duly sent up their narrow spears of green in the spring, no flowers followed. I am hoping that the reason for this was that the bulbs were not of blossoming size and that I may yet have in store for me the revelation of their beautiful and interesting flowers. They were planted in the ordinary soil of the rock garden, light and stony, in sunny places. Mr. Farrar says that in English rock gardens they make themselves at home and "even seed themselves," so I think that we are justified in believing that as they appear able to endure the cold of our winters we may

succeed with them. Mr. Purdy speaks of them as especially happy under Oak or other deciduous trees, but all the news I have been able to glean of their successful cultivation away from home indicates that they are usually grown in sunshine.

* * * *

Among the most priceless jewels of the Western flora, indeed of any flora, are the wondrously beautiful and amazing Calochorti: the Mariposas, the Butterfly Tulips, Fairy Lanterns, the Globe and Star Tulips, as the various forms are called.

It must indeed be a rare experience to see these exquisite flowers growing wild, freely and without stint, and it seems a dream too good to come true that we shall ever know them thus whole-heartedly flourishing in our Eastern gardens. That we may keep them for a year or two we have proved, but so far as I can find, nowhere in the East have they set about making themselves permanently at home. In his catalogue Mr. Purdy gives careful instructions for their culture and I can add nothing more than to say that by following these instructions all the kinds that I have tried flowered well after enduring an unusually wet and trying winter. They were planted in November on the rock garden and covered only with a few Oak leaves. They flowered in the late spring and early summer. Words can convey nothing of their startling beauty and distinction, but John Muir wrote this of C. albus, called the Fairy Lantern, that gives some idea of the feeling they arouse

in one. It is "a spotless soul, a plant saint that every one must love and so be made better. It puts the wildest mountaineer on his good behaviour. With this plant the whole world would seem rich though none other existed."

The little Star Tulip (C. lilacinus) flowered here on the twenty-fifth of May, the first of its lovely kindred. It is an exquisitely fragile silvery-lilac creation that enchained the attention of all who came to the garden. It was directly followed by C. Benthamii, the little yellow Pussy's-ears of the California mountains. C. amabilis bloomed on June tenth, a charming yellow Globe Tulip, followed immediately by the matchless albus. C. vesta flowered on June sixteenth, huge flowers on tall, slender stems, and of a colour scheme wholly beyond the powers of my pen to describe. Grow them! The bulbs are very inexpensive and no one should miss the pleasure of knowing these beauteous flowers of our great West. Moreover, it is only by constant experiment, trial, and ceaseless hoping that we may hit upon the way of making them wholly at ease and settled in our Eastern climate.

My experiments have included ten varieties, all of which have lived over a winter and blossomed well. And I know of at least two gardens where the dwarf sorts, albus, amabilis, and Benthami, as well as the great vesta, have flowered the second season. I hope ardently to have the same good news to report of them and perhaps of some of the others in my own garden.

CHAPTER VIII

Collecting Crane's-bills (Geraniums and Erodiums)

Wildwood geraniums, all in their best
Languidly leaning in purple gauze dressed.

I HAVE heard it said that admiration for the wild Geraniums is an acquired taste, and I think this is probably true. They are not showy of blossom, have no qualities that take us by storm, but gradually, as one grows the various kinds, one becomes aware of their very real charm and beauty. They are not very widely grown by American gardeners and I don't know just what gave me my first impetus in their direction. Perhaps it was Mr. Bowles's fascinating twenty-four pages of Geranium lore ("My Garden in Summer"), perhaps Mr. Galsworthy's charming pictures that so often show them, but whatever the cause, I am now a most eager collector, not only of Geraniums, but of their even more attractive relatives, the Erodiums, or Heron's-bills, and become yearly more impressed with their varied and quite subtle attractions.

When one has advanced to a quite wide acquaintanceship in the family, one finds that there are Geraniums suited for practically every sort of situation; many fine enough for the herbaceous border—that region which must be for ever on parade—lovely sorts to bring

soft colour to shaded banks, to smile in open woodland, or to throw a veil of seemliness over rough or waste places; and for the rock garden there are veritable treasures. Indeed, few families are so variously useful, and they are all, save a few of the alpines, of the easiest possible culture. Any good garden soil suits them, and they thrive in sun or partial shade with equal cheerfulness.

That they are summer-blooming for the most part is an added grace, particularly in the rock garden where one must be at a good deal of pains to keep up a show of colour once the lights of spring have danced away. Many, indeed, bloom off and on all summer and through the autumn, but their attraction is not alone centred in the blossoms; the young unfolding foliage of all the kinds, no matter how weedy they may later become, is beautiful, showing tints of fawn and scarlet and pink as lovely as those of flowers, and in the autumn the handsome leaves colour to warm reds and crimsons. Mr. Bowles says, "I find many of them invaluable for filling half-shaded positions with at least ten, if not twelve, months of beauty and interest." And they will do nearly as much for us.

Geraniums and Erodiums are closely related. Characteristic of both are the wide salver-shaped blossoms, sometimes fragile and as thin as paper, again of greater substance, large and almost showy, and the curious beaked seed-vessels that suggested to the gardeners of old the vernacular names, Crane's-bill and Heron's-bill.

The majority are quite reliable perennials, a few

biennial, some too tender for our climate, some too weedy—particularly among the Geraniums—for garden use, and a few annual kinds. Little, if anything, has been done to "improve" them, which is perhaps the secret of their charm, for they are plainly not garden-wise and endow any region where they are grown in numbers with something of the grace and that freedom from any apparent straining after effect that we so enjoy in wild scenes.

The requirements of most of the Geraniums are easily satisfied and a number self-sow so freely as to become a bit disconcerting where one is trying to establish small choice plants. The alpine Geraniums are more difficult and most of the Erodiums must be treated as rather special guests. All are most readily raised from seed and should be handled when quite small, for by reason of their long tap roots they bitterly resent a moving day.

Probably our common wild Geranium (G. maculatum) is the most familiar of wild flowers, for it springs insistently wherever throughout the East it is not actually held down by city streets and buildings. It is not of the first value; its hue is indefinite and its foliage the poorest of the family, but massed closely in shady places it has a certain quality of modest attractiveness which may recommend its use where an inexpensive decoration is desired. Nor is our small Herb Robert (G. robertianum) quite up to garden standards, for though its young leaf-growth is quite lovely, its blossoms are small and dull of hue. It is a biennial but becomes

through its furious self-sowing quite a pestiferous weed, and as the plant when bruised exhales a quite horrid odour, weeding it out is an unpleasant task. I once saw, however, the north side of a high retaining wall in an English garden almost entirely veiled with the white form of Herb Robert—a much better plant than the weak magenta form to which we are accustomed. It was self-placed, the owner told me; had sown itself in the mossy chinks among the ferns and mosses in ever-widening colonies, and the effect of the many little white blossoms against the green and gray of the background was distinctly delightful. I have never come across the white form in this country. The pink is fit only for rough waste places or woodland.

Out in the West are numerous wild Geraniums that might increase the beauty of our gardens. The only one I have thus far been able to obtain is G. Fremontii, seed of which came from Mr. Andrews. This is a good plant, decidedly, though some may shy away from the magenta tinge of the blossoms. It grows a foot tall, has handsome vigorous foliage, and blossoms throughout a large part of the summer. It likes a deep soil that will not become too dry, and is fine for the edges of woodland or for large rock gardens.

Geranium pratense, the Meadow Crane's-bill of Great Britain, is a beauty for a half-shaded bank or any waste place, but on no account should be admitted to the rock garden. It grows three feet tall and spreads large leaves over small creatures until they give up the ghost, scattering seed unrestrainedly the while, that shortly

arises and gives us a deal of trouble. But it is lovely, nevertheless, and all gardens should have it in some out-of-the-way place. Its blossoms are sometimes a most sweet and tender blue, sometimes very pale, again with considerable depth, and there is a white form, and all are delicately veined after the characteristic fashion of their kind. A packet of seed will yield a variety of soft tones and the plants will bloom all summer long.

Another species that belongs on a shaded bank is G. armenum, of which Mr. Bowles writes, "It would be, but for its black eye, one of the worst astringents of the vision in the whole garden," which means, simply, that it is rather more magentaish in colour than he can stand. The lover of Geraniums who is at the same time a hater of magenta has a sad time of it, for many of them quite flagrantly glory in the forbidden hue—and right well they carry it. G. armenum is a tall sort, almost four feet, and vigorous. I had it in the old garden but lost it over an unusually severe winter and have not yet replaced it.

G. ibericum is another beauty for the shadowed bank, a beauty that will offend no one, for ibericum clothes itself in a most delicious soft and ingratiating blue. But for its short blossoming period it would be fine enough for the borders, but as it gives us a bare three weeks it is best not placed so conspicuously. Its form, platypetalum, is perhaps a better plant, with blossoms of stronger, though not to my thinking better colour, borne in great profusion during a few weeks of early summer.

G. sylvaticum from alpine meadows and G. tube-

rosum also belong in shaded places, the latter in some unwanted corner, for it is such a fiend for spreading that it must be put where its wanderings can do no harm.

Of the kinds suited for use in the garden borders are, preëminently: sanguineum, grandiflorum, and Endressi, and these may also be used in rock gardens of fair size. They are all delightful. G. sanguineum grows about a foot tall and is half procumbent in habit, forming a broad tangle of dusty-looking leaves and thread-like stems from which hang innumerable bright magenta blossoms. It is a splendid plant for the edge of a sunny border where its fighting hue has been considered in the selection of its neighbours. The white form is one of the treasures of the garden and fit for the finest company of border or rock garden. Its thin-textured blossoms are produced in wild profusion against the dusty leaves, and it is a dwarfer and more compact and altogether more choice-appearing plant than its crimson sister, while just as willing and vigorous. These plants, to yield the best of which they are capable, should be given a sunny position in good soil. They will grow in shade, but the habit becomes much less compact and the blossoming far less generous.

Geranium grandiflorum is, I think, the bluest Geranium, a strong rich blue, though the crimson veins on the petals keep one in mind of the family weakness. The flowers are of great size—for a Geranium—and the plant forms a handsome, close bush about a foot tall—taller when in blossom. I grow it in a bold part of the

rock garden with a background of creamy and lavender Columbines, against which its splendid colour shows to great advantage. It flowers from the end of May for many weeks, and is the best all-round member of the family that I have met up to date. G. Endressi, however, is a fair second, and as easy and amiable as it is charming. Its blossoms are a light soft rose—the colour of raspberry ice, says Mr. Bowles—and borne with freedom over a long period, so that it is a good border plant, and being fairly dwarf—a foot tall—a good rock plant as well. With me it is almost evergreen and is one of the first to clothe itself in fresh beauty in the spring. I have it both in shade and in sun on the rock garden and in both situations it is equally happy, though where the soil is very light and dry its growth is more dwarf and compact.

Of the true rock-garden sorts, the true dwarfs, first place must be accorded Geranium argenteum, for not only is it the pearl of all Geraniums, but few alpines of any sort can match it for sheer loveliness. It is a true high mountain plant, low and tufted with large, exquisite flowers; its leaves frosted with silver, its flower a most tender and appealing pink, large and held close to the silver leaves, the whole plant no taller than six inches. Nor is this treasure difficult of culture. It likes a well-drained gritty soil and sunshine, and a position where a kindly stone will shut off the north winds. This is a plant that I should advise raising from seed, by all means, for it so deeply resents disturbance when once it has attained any size that it is very difficult to

establish plants purchased from a nursery. And the seed germinates so readily that the most impatient will not be discouraged. I like to put the seedlings in their permanent places as soon as they may be handled, even though I must put a little fence of wooden labels around them lest I overlook them in my weeding and cultivating. They grow slowly, but once they have reached blossoming size all memory of the waiting is swallowed up in our amazement that a thing so inconsiderable could so fill the world with beauty.

G. cinereum is only a little less lovely—a little less silvery, less dwarf, the blossoms paler and veined with rose, but it is also an easier plant to grow and less resentful of disturbance, though it certainly does not desire it. There is a pure white form that is very choice and lovely; the two are charming grown together on a little sunny slope. G. cinereum represents the dwarf Geraniums in the Pyrenees.

A still more amiable form, and one hesitates to say that it is less lovely—for being only less lovely than the two just mentioned leaves G. lancastriense still a wide field of beauty—but it lacks the silvered leaves of the one, the grayish foliage of the other, which so enhance the effect of the wide pink blossoms. But it makes fine flat mats of good green against which its large blush-pink blossoms, veined with deeper colour, show to fine advantage. This is a wholly easy plant to grow on any well-built rock garden and it comes readily and true from seed. Here it grows both in sun and in partial shade with equal willingness, accepting the ordinary

soil of the rock garden as if born to it. Small plants gradually make very gratifying broad mats and from late May until frost it is never wholly out of bloom. It is quite the best of the small Geraniums for the beginning rock gardener. G. lancastriense is a form of G. sanguineum, and is found in only one spot in all the world —the Isle of Walney, off the west coast of England.

G. Traversii is chronicled as a beauty for the rock garden but I have not yet had it, and as it comes from New Zealand it might not be reliably hardy. It is said to be dwarf, silver-leafed, and pink-blossomed, with a tidy and compact habit—very alluring, and it is down on my seed list for this spring.

G. sessiliflorum forms a perfectly flat mass of leaves and at the heart of each rosette a tight little bunch of tiny pure white blossoms. Not at all showy, this South American sort, but quaint and interesting, and it is entirely hardy. It bloomed freely with me the first year from seed.

Geranium Wallichianum is the most delightful of my recent acquaintances; a decumbent plant larger of leaf and flower than any of the rock-garden sorts and requiring space to trail its lax branches. It does not exceed six inches in height, but the leafy branches reach out to a length of a foot or more and should be given a warm stone to trail over. I raised it from seed last spring and it bloomed prodigiously all through the autumn, the flowers large and in various soft tones of mauve and lavender, almost achieving blue, delicately veined and with a white eye. It is perfectly hardy, all

my plants having survived in all sorts of widely differing positions, and it seems to me a gem of the first water. Its late-flowering habit makes it especially valuable.

A glance at the Geranium lists in the Kew "Hand List" or Johnson's "Gardeners' Dictionary" will show how little headway I have made among the throngs of Geraniums that grace the various parts of the temperate world. But what I have seen has made me eager to see more, to have all the kinds possible growing about the garden, along the shaded bank above the Primrose Path, at the edge of the tiny wood, in the rock garden, and in the sunny borders. Nor is the wish a vain one, for any one may make a collection of Geraniums who takes the trouble to raise them from seed. Thompson & Morgan, of Ipswich, England, offer fourteen of the best kinds, which will do for a start.

And a liking for Geraniums leads naturally to a curiosity concerning their Erodium cousins, and when one has gone a little way among these one is inclined to withdraw some of the most glowing adjectives that one has applied to the Geraniums and apply them instead to the Erodiums. For there is something very unusually fascinating about these Heron's-bills. Even to think of them and the sunny southern hills of Sicily, Corsica, the Balearic Isles, Spain, southern France, Greece, Italy, where they grow puts one in a sort of glow of enthusiasm, especially upon a dull winter day (such as the present one), when the brown meadow beyond the window is unlovely with patches of left-over snow and the wind alternately whines and threatens.

Some persons I know, good gardeners, too, do not care whence their plants come, nor even to know their specific names, acting as if their cherished green things sprang direct from the pages of catalogues, quite innocent of any other habitat. But these incurious ones miss something of the best that the plants have to give us. To know their names, both proper and vernacular, is like knowing the names of our friends or household pets; to know whence they come is to be able at will to spread a magic carpet for the mind and journey thither.

I have not got very far with the Erodiums, myself. For a long time the fact of their southern abiding places gave me the idea that they would not be hardy in this cold locality. And some of them are not. E. corsicum, and E. chamaedryoides, both from the Island of Corsica, have proved tender with me and with other gardeners whom I have questioned.

They are all, so far as I know them, for the rock garden, unless one should except E. Manescavi, but even this species is not too large for a fair-sized garden if kept out of the way of the smaller plants. They are all, also, for sunny locations in deep, well-drained gritty soil with lime added in some form. Given these conditions they are not at all difficult to grow, and one may count upon their increasing their beautiful tufts of foliage yearly in the utmost felicity and serenity.

Erodium Manescavi I have grown for years, a rather hoydenish thing, biennial, too, with me, but sowing its seeds so freely that one could never lose it quite, with

flagrantly magenta blossoms and amazing Heron's-bill seed-vessels that unfailingly provoke the covetousness of young visitors to the garden. It is of the Pyrenees, hardy, and it flowers all through the summer and autumn, causing anguishing colour trouble where it grows among the orange-coloured Spanish Poppies that also spring up wherever they can find a foothold.

Very different is E. cheilanthifolium, with lovely fern-like leaves, a little silvered, and charming white flowers darkly veined. This kind comes from Spain and Morocco and is perfectly hardy. A good deal in the same fashion is E. trichomanefolium, but with greener leaves and pink dark-blotched flowers. There is a white form. These are no more than six inches, possibly eight, in height. E. macradenum is but four inches tall all told. The small pink flowers have a black blotch at the centre. Last summer I lost through the "accident of an accident" a fine lot of E. supracanum seedlings, so I can say no more at first hand than that they were lovely babies. But Mr. Farrar says it is a species of the rarest loveliness, having flat foliage, not so crimped and feathered as some, and all overlaid with a plating of the most delicate silver, while the blossoms come in four- to six-inch clusters on bending stems, in the most delicate contrasting beauty of bright unspotted equal-petalled pink butterflies, fine and round. Truly my loss is a bitter one.

But of course supracanum is on the new seed list, as is the fascinating yellow-flowered E. chrysanthum, from the high mountain regions of Parnassus; E. Guicciardi,

Sedum pulchellum, a delightful native of Virginia

A spray of Sedum ternatum, a native species and the earliest to bloom, shows beneath a tuft of Symphiandra Hoffmanii

A fine new Poppy from Thibet, one of the best of its race for the rock garden

Alpine Poppies (Papaver alpinum). One can not have too many of these fairy flowers

with silvered leaves and pink flowers, from northern Greece; E. amanum, from northern Syria, with white flowers and a height of six inches; E. guttatum from the Mediterannean regions—and more.

They are as readily raised from seed as are the Geraniums, so do not pass them by. The Geraniums are full of charm and diversity, but the Erodiums seem to be flowers from a fairy world, unbelievably dainty, exquisite, alluring.

CHAPTER IX

Poppy Magic

And I am witchery, and even woe,
—Amory Hare.

IT SEEMS to me that in no plant family are the members so universally delightful as in the Poppy family. Indeed, I never saw a Poppy that was not wholly captivating. Even the great Orientals, undeniably stout, and too obvious, too coarse to be mentioned in the same breath with some of the little careless, airy creatures that flutter about the garden ways, have much of the charm that distinguishes this gifted race. There is a mixture of boldness and appeal, strength and fragility, in them all that is supremely alluring and amusing. A French painter once said that it is not possible to imprison upon canvas the lucent brilliance of Poppies in sunshine; nor can words give any idea of their flash and delicacy; only in a garden full of them, where they may be observed year after year through every phase of their lovely development, in all their wayward moods, in sunshine and shadow, storm and tranquillity, can one realize their infinite grace and variety, the magic of their vivid, flashing charm.

Happily we met with Poppies in all but the most

shadowed gardens. They are universally enjoyed, and are so easy to grow that the veriest tyro may make a sensational success with them. A single packet of Shirley seed will bring about the most amazing results; a few seeds of some of the great powder-puff sorts are enough with which to astonish a community. Such colours! Among the Shirleys every tint and tone that is to be got from the entrancing scale between blush and scarlet; among the other annual sorts all these with the addition of lovely gray and mauve and heliotrope tints, and frosted white creations—fluted, ruffled, fringed, full-petalled as powder-puffs, or fashioned like fairy cups. Among the Orientals, too, we now have many other hues as well as the familiar red and scarlet splendours—salmon and blush and clear pink and even a great fragile white one with a rich purple base. And it would seem that here were riches enough for any Poppy lover, enough to fill the summer days with flashing, glancing beauty and sumptuous colour, without casting about in obscure mountain regions and arid plains of the earth to attain some little graceless, flame-headed creature who may "up and die" for no apparent reason, or again may live with such passionate enthusiasm that before long no spot is safe from its conscienceless invasions, and many a small excellency in the rock garden is hustled out of life by complacently grasping gray-green rosettes.

But gardeners have ever been a curious folk—"curious searchers after outlandish things," one old book calls them—ever looking out over the hills and far

away, sending their desires forth on the wings of the post and receiving back treasure from distant lands, and never being satisfied with what is at hand and to be got without trouble. And so while Poppies beckon in the high hills of the world, or dance on the sunny plains, no Poppy lover will sit down and be satisfied with Shirleys and Orientals, whatever their charms and splendours. Were it not so, were it not for this restlessness of desire in gardeners—or, as has been said, this vanity of amateurs—the plant quarantine might indeed strike a grievous blow at the increase of beauty in our land, and horticultural progress among us be reduced to the speed of the tortoise.

A good deal of my own curious searching for many years has had to do with Poppies, and I am always on the lookout for one more of the little vibrant creatures that may be induced to accept my poor but eager hospitality. Sometimes a new name only brings to light an old friend abroad under an alias; sometimes a newcomer does not see its way to tarry, but even the memory of one of these little wild Poppies, so fugitive, so thrillingly alive for the moment, is to be treasured in even the richest garden experience. Sometimes my find is an audacious creature who sees in my garden a new world to conquer—and then I am rejoiced. But the genus is not a very large one and it takes a deal of patient searching to find them out.

The old garden was a veritable paradise for Poppies; all sorts and conditions of them flourished there in joyous freedom, mingled and married and brought forth

bewitching babies, and went their way over the garden wall to the meadow beyond, and on to the open road, rejoicing in the fine clear air, the light soil, and the abundant sunshine. And I am watching with anxiety to see what they will make of the new garden, which is so much less a sun-trap, less windswept, less high and dry and airy. Some are quite plainly pleased, others seem to hesitate, and I can but wait; but I can scarce hope for such throngs of vivacious, dancing revellers as stormed the tranquillity of summer days in the old garden.

All Poppies love sun and wind and fine, pure air, and a well-drained soil, and they hate mists and standing moisture and to be shut in by other plants. For all the small kinds the rock garden—a sunny one—is the ideal spot; it furnishes all they ask and there they are as permanent as Poppies can ever be said to be. Most of the kinds must be accepted as biennial, if they vouchsafe us even so much. Nevertheless a Poppy, where the conditions suit it, is usually a Poppy come to stay, for they all seed freely and the seed is hardy and germinates readily.

I began my Poppy adventures, as does almost everyone who gets beyond the thrall of the annuals and the Orientals, by making the acquaintance of the Iceland Poppy, Papaver nudicaule. These, as most persons know, are fragile-appearing creations of silken crêpe, borne with the utmost prodigality from spring to autumn if the seedpods be not allowed to form, and shining forth in bright hues—scarlet orange, yellow, and lately

in such fine strains as Pearls of Dawn and Sunbeam, displaying a quite entrancing scale of blush and salmon and rose-pink sorts, as well as pure white. Last year I had from Thompson & Morgan of Ipswich, England, a fiery strain called Tangerine, the flowers very large and produced throughout the summer, the splendid colour well described by the specific name. Iceland Poppies will grow in the borders, but the soil must be well drained and sunny, for damp is the certain undoing of all the race. Damp and not cold is the cause of the feeble way these plants have of dying off over the winter. They are hardy and sturdy, born of the north, and cold has no horrors for them, but they die of wet feet very quickly. If it is desired that the plants bloom throughout the summer, seeds should not be allowed to form, though it is pleasant to leave a few pods on the slender stems for the sake of next year's crop of gaiety and beauty. They bloom freely the first year from seed, continuing to send aloft their delicate cups almost until snow falls.

Akin to the Iceland Poppy, but more diminutive, more fragile, more fugitive, and infinitely more lovely are the wild Poppies of the Alps—those we know as Papaver alpinum, the Alpine Poppy. Beside these fairy beings the slender Icelander looks a great hoydenish thing, though alone it appears the embodiment of airy grace. It is not possible to grow Iceland and Alpine Poppies in the same garden—or indeed any sort—and keep them true to type, for they are in such hot haste to wed. One may raise them freshly from seed

obtained from a reliable source every year or two, or one may just make the best of the gay business and enjoy the resulting tribe of engaging babies that will arise and flutter about the garden, few of which, however, will perpetuate the special fragile loveliness and dwarf stature of the Alpine parent.

Alpine Poppies are found high up on the various mountain ranges of Europe, growing in "the austere shingles," their gray elfin tufts of delicately cut leaves nestled among the rough stones, their fairy cups offered on four-inch stems boldly to the sun and wind. No more fairy-like plant can be imagined. Everything about it bespeaks delicacy, fragility, the need for care, yet is the Alpine Poppy a most hardy and sturdy small creature. It wants no coddling, no shelter from frost or wind or cold; no fat, clogging food; and he who seeks thus to tempt them is doomed to speedy bereavement. But damp, where they are concerned, must be avoided at all costs. "All Alpine Poppies," wrote M. Correvon, "love windy situations, and they love the sun and a soil compounded almost entirely of stone chips and sand with only a little mould running through it." Iceland Poppies will tolerate the borders if must be, but the alpines are for the rock garden alone—its highest, dryest, sunniest, windiest points, and here they will live ardently and blossom with the most amazing vigour for such tiny things.

Out of a packet of mixed seed a year or so ago I had some lovely kinds—a charming pale yellow one with the diaphanous petals all delicately fringed, a salmon-

coloured one, lovely in combination with its gray lace foliage, pure white ones and others in scarlet, orange, and pink. But there are specific forms native to the different mountain regions, though it takes a deal of patient searching through many catalogues to find them—and then the seed may not be true. There is P. rhaeticum of which M. Correvon writes, "The flowers are very fragrant and generally yellow, but are white if on chalky ground." Assuredly a fragrant Poppy is something to look forward to, and to cherish if found. There is also P. Kerneri, all yellow, and Burseri, with white flowers yellow at the base. P. pyrenaicum is a form I once had that is noticeably hairy of leaf and stem and bud, and there are others for the insatiably curious searcher, but a packet of mixed seed will yield sufficient beauty and variety to fill the soul of any gardener—any gardener who cares for tiny, lovely things and has not his whole mind set upon size and splurge—with beatitude.

The Alpine Poppies, like all the race, come readily from seed, but they should be handled while young, for they resent with fierce poppyish resentment any meddling with their roots once they are of any size. It is best to sow the fine seed where the plants are to grow, or to move the babies before they are old enough to know what is happening to them.

Once I had a packet of the seed of Papaver tauricolum, a Levantine. It was found after a long quest and consigned to a frame with great expectations. But something got into the frame and scratched to such good

purpose that every seedling was thrown out of the earth and perished in consequence. P. tauricolum has since floated before my imagination as the most desirable of its kind, but thus far more seed of it has been denied me.

To offset this disappointment a nameless species from Thibet came last year to dwell in my garden. The seed came from Thompson & Morgan. The plant is midway in size between the Iceland and the Alpine Poppy, the leaves green and much cut, the flowers rich Trollius gold in colour and borne in a veritable fountain. The Iceland Poppy and the Alpine sorts begin to bloom often in late April, but this Thibetan holds himself in check until late in May—this year, the very last day, to be exact, and in autumn the leaves die quite away and spring anew the following year. A few of my plants died over the winter, some rotted also during the spring rains, so I take it this newcomer requires even a dryer, higher situation than has been given it, with a poorer soil mixture. But I am delighted to come upon so distinct and charming a species.

Papaver rupifragum has been established in my garden for many years. It is as securely ensconced in the new garden as it was in the old, and already sowing itself into neighbourhoods and company where it is not desired. This plant has a root that goes apparently to China and seems as reliably perennial as any Poppy can possibly be. It seems less sensitive to damp than others of its kin also, and even springs up and blossoms defiantly in shaded places. But P. rupifragum is an undoubted vagabond—a rakish, careless, untidy fellow,

whom to know is to love in spite of undoubted depredations and proven lawlessness—a free seeder establishing colonies of flat rosettes all over the place without permission and generally creating havoc among small, sensitive things, and wrecking cherished colour schemes. One would not be without this gay creature from the Spanish hills, however, for from May throughout November he hoists on slender wiry stems a bewildering succession of frail blossoms, vivid snatches of apricot-coloured silk that add much to the brightness and gaiety of the garden. Fat living is bad for him. Given such he shoots up an ungainly length of stem topped by a frail wabbling blossom; but keep him on a low diet and he perforce remains nice and tufty, his stem of seemly height and his blossoms—a fountain of them—of splendid colour and texture. The poorest soil is not too poor for him, nor the most exposed spot too dry and sunny. Give him a chance and he will bring gaiety to many a bleak corner, will whip into life many a group of sad-coloured flowers. Once I had a narrow border planted with blue Flax (Linum perenne) and this Spanish Poppy, and among them long-stemmed lavender Darwin Tulips. It was one of the loveliest things in all my garden experience, and though the border is no more, and the dear garden where it had its being no longer mine, it is still before me, for Miss Winegar happily caught its beauty upon her canvas, holding for me for all time the flash and glow, the sweetness of summer days in the old garden.

It is said that my Spanish friend has wed an Oriental,

bringing to life a hybrid called ruporient, said to possess the best qualities of both parents. There are hybrids, too, between rupifragum and the handsome Greek, P. pilosum, all desirable but too vigorous for the rock garden. P. pilosum is easily had from seed, and is a handsome orange-apricot sort, and I have had a species known as P. atlanticum that differs in no wise from rupifragum save that the blossoms were a deeper colour.

These Poppies, like all their kind, are difficult to transplant when they have attained any size, but they will thrive in any soil from that of the ordinary border to pure gravel, and they are as hardy as iron. They are delightful naturalized on rough sunny banks or allowed to roam the garden following their own whim, and they will strike up many a gay friendship for our delectation. Lovely among the dim peach-leafed Bellflowers, lovely among the Madonna Lilies, lovely hovering about the clumps of pale blue Iris, exquisite swaying among the seas of Flax. But they are best denied a footing in the rock garden, where, being no respecters of personages, they soon spread their stout rosettes over the cowed heads of hapless royalties, and so bring down our wrath upon them.

Papaver caucasicum is better as to behaviour and more beautiful to look at. It is softer in colour and more compact of habit—if anything so airy as a Poppy can be designated as compact at all—and boasts a rosette of blue-green leaves that would be the pride of any plant. P. caucasicum is restrained as to its increase, not seeding itself so freely as many other kinds,

and though entirely hardy, is quite clearly a biennial. This kind is best cared for in the rock garden, but it is scarce and the seed difficult to obtain, so once you have it you must cherish it.

Papaver californicum I have had of Mr. Burbank. It is an annual, not however to be confused with Eschscholtzia californicum, which we know as the California Poppy. This species is said to hail from the Santa Inez mountains. It bears brick-red blossoms with a patch of green at the base of each petal. I am hoping that though an annual it will prove a hardy one and by self-sowing will keep itself going and join the bands of other wild Poppies that I am encouraging to make the garden the scene of their wanderings.

And then one hears of P. arenarium, a bright being said to haunt the heights of the Caucasus; of P. libanoticum with pale purple blossoms; of P. floribundum, with gray rosettes and a pyramid of scarlet flowers; of P. triniaefolium, with a flat rosette of "hispid silver leaves, of a rare loveliness"; of others ever luring us on to reach out and make our own these little blithe beings of the far places of the earth; ever intriguing us by their elusiveness. And therein lies the fun of Poppy collecting. Could their names all be seen in a smug row in one catalogue like Sweet Peas and Nasturtiums, slight indeed would be the zest of obtaining them. But to know that the way is long and difficult, the result uncertain, starts the adventurer on the road with a high heart and gay expectancy.

CHAPTER X

By Benefit of Seeds

All seed-sowing is a mysterious thing whether the seed fall into the earth or into human souls.

—Amiel's Journal.

THE whole affair of seed-sowing has ever seemed to me invested with wonder and enchantment. Never does it become a commonplace garden experience. From the very beginning mysterious forces appear to have the matter in hand. Clap the hands, or drop a letter in the post—it is all one—and straightway there appears from some far place a brown parcel compact of smaller parcels, flat and inscrutable, each neatly labelled with the brand of enchantment it contains. Investigation discloses minute objects, white or black, gray or brown, some hard and shining, some rough-coated, others light and feathery as thistledown; all secret, enigmatic, giving no hint of the extraordinary vigour stored within the tiny shells—a vigour that will presently thrust the frail atom of life upward through all barriers toward the sun, will materialize amazing colours, exquisite forms, and release at last from the perfected flower a cloud of perfume, as if the plant sighed in ecstatic contemplation of its accomplishment. And there along my garden borders and in my garden

beds I see the flowers of the world—dewy Primroses from the Orient, tight rosettes of down from the hem of a mighty glacier, children of the desert and of the sunny isles; Poppies from Spanish hillsides; Cowslips from sweet English meadows—

> Foreigners from many lands
> Which form one social mass, as if convened
> By magic summons of the Orphean lyre.

This indeed is magic, and the great wonder is that more do not practise it, for it lies within the grasp of all who have command over a bit of earth with a patch of blue sky above it.

When I first began to have a garden, long ago, the only way to get any but the most ordinary varieties of plants was to raise them from seed, or to import them from abroad. The latter was a chancy business, for the plants usually arrived in a travel-worn and debilitated condition and there was always considerable loss from deaths by the way.

To-day, despite the crippling quarantine enactment, our nurseries are steadily increasing the number and variety of their offerings and there is no longer the same necessity to resort to seeds in order to possess a collection of interesting and beautiful plants. But to one personally occupied with the concerns of his garden and insatiably curious as to the flowers of outlandish places, seeds offer a never-ending source of entertainment, and the trials and experiments invariably bring to light

many plants of value for the permanent adornment of the garden.

Yearly I search the catalogues of the flower-growing world for treasures, and receive the flat packages with as keen a thrill as I used to experience twenty years ago. And yearly, when that ephemeral mildness, hardly sensed but mighty in its effect, creeps into the world beneath a cold sky, making us all, plant, bird, beast, and the least of men "slave to a springtime passion for the earth," I sow my seed with a feeling of renewed hope and buoyancy not induced by any other act or occupation.

And of course raising plants from seed is a far more economical method of acquiring a collection than buying them ready grown. For the price of a few plants from the nursery one may have many home-grown seedlings, but one must have the time and the inclination to look very carefully after the babies, or the loss will be great. In raising plants from seed, as in other matters, "diligence is the mother of good luck." The home-grown seedling is, as a rule, sturdy and amenable, but it requires to be safely conducted past the dangers of early infancy before we may feel safe about it. The reward, however, is richly commensurate with the trouble involved, and it is such fun to have plants enough of some new or rare variety to pass over the fence to one's neighbour, and to do up in a package for the interested visitor to carry away with him.

In the course of twenty years of experiment in raising plants from seed, I have arrived at a method the sim-

plicity of which should appeal to those whose days must hold many occupations besides gardening. It requires little actual time but, like all worth-while concerns, it does require attention to detail and that first and most important qualification in a gardener, patience.

The seed of many hardy plants may with every chance of success be sown in the open, in carefully prepared beds of light soil, but for choice varieties and rock plants a coldframe is an invaluable appliance. By means of the shelter it affords we are enabled to safeguard the seeds from all manner of dangers; from hungry insects and birds, from dogs and cats and frolicking children, from storms and too great heat and cold, in short to give them very special care and security. Seed sown in the open is frequently lost through some mishap, or, if the fates be kind and the little plants start life, the first fierce storm may beat them out of existence. But within the protecting embrace of a frame each has a fair chance to live and be beautiful.

Now a coldframe may be a convenient, comfortable thing to work with, or it may be, and usually is, a back-breaking, sleeve-tearing, maddening affair, fit only for long-armed, overall-clad man to deal with, and even for him far from ideal. In three gardens I have built three sets of frames, and on each occasion they have become smaller and more numerous. Professional gardeners smile indulgently at my bijou frames, but if they knew the ease with which I reach across them, and twitch

out the weeds that cower against the very back line, the solid comfort I take in being able to plant and cultivate without straining my clothing, my temper, or my anatomy to the breaking point, they would not regard them as a joke, but as the only sensible kind for a woman, and for most men for that matter, to use.

My present frames are built in twelve sections, each section being but 2½ feet wide by 3 feet long. They extend along a picket fence, and the sash, which is hinged to the back of the frame may, when not required, be raised and fastened to the fence by means of hooks and eyes. This is a great convenience, doing away with all lifting and moving of the heavy sash, and the necessity to store it in a safe place when not in use. The ground is excavated to a depth of about eighteen inches below the bottom of the frame. A layer of several inches of broken stone is followed by a layer of sods, grass side down, followed by ten inches of prepared soil composed of two parts sand and one each of good loam from the garden, and leaf soil, brought from the woods or commercial, the whole made light and fine by being put through a wire sieve. This is a good mixture for general use, but may be modified as experience shows the need in the case of some plants for something different.

The surface is made perfectly level and, a few hours before the seed is to be sown, watered thoroughly with a fine spray. I sow the seed directly in the soil of the frames and not, as is the common practice, in pots and pans, thus obviating (to the advantage of the busy

person) several operations, and I have found the results quite as satisfactory. A narrow plank (two inches), cut to fit the depth of the frame, lightly pressed upon the soil at intervals of three inches serves to make a firm surface upon which the seed may be thinly scattered. The importance of thin-sowing is obvious, as crowded seedlings keep the air and light from one another and many are lost in consequence.

Over the seed is sifted soil, almost pure sand, to the depth of about the diameter of the seed. Feathery kinds, like Centaureas, require to be more heavily covered, but very fine kinds need the merest dusting of sand, or simply to be pressed lightly into the soil. Large seeds, like those of Irises, Lilies, Lupines, lie comfortably with a full half inch of soil above them. Each row should be clearly labelled with the name of the variety and the date of sowing; and if the ground has been well moistened earlier in the day no further watering will be necessary. Sheets of newspaper are placed over the surface of the soil to prevent evaporation of the moisture, but these must be immediately removed when the little plants begin to show. The sash is kept closed and if the weather is very cold, squares of matting are placed over them at night.

As soon as germination takes place the papers are removed and the sash propped up an inch or so to admit of a free circulation of air. But, lest the sun be too strong for the tender seedlings, light screens, made of lath fastened two inches apart to heavier top and bottom pieces, are laid over the sash. When, with the arrival

of warm and settled weather, the sash are permanently removed, these screens, that are of the same size as the sash, remain to protect the little plants from the direct rays of the sun and to temper the force of the beating summer rains.

The seed of some plants germinates very readily, of others more slowly, and discouragement should not be entertained if weeks, even months, go by without the cheering sight of a little humped green back. The condition of the seed has a good deal to do with the matter too, fresh seed germinating much more readily than old; but the seed of some species is by nature very dilatory. For many years I have been recording the length of time it takes various kinds to germinate, and the data thus obtained enable me to arrange matters so that the lazy ones may have their sleep out in a frame to themselves, undisturbed by the early risers, and also to the satisfaction of the early risers who are impatient for sun and air as soon as they awake. I divide them into three classes: (1) those that may be looked for above ground before the end of three weeks; (2) those that may lie abed for as long as two months; and (3) the slow-coaches that are capable of keeping us waiting anywhere from two months to a year or two.

The following tables are necessarily imperfect, for many and various factors govern the germination of seeds, but they serve as a useful guide where many varieties of seed are sown directly in the soil of the frame, so that all in a frame must receive practically the same treatment:

GERMINATION TABLE FOR VARIOUS SEEDS

From one to three weeks

Achilleas	Bellium	Linums
Anchusa	Cheiranthus	Lychnis
Anthemis	Cerastium	Lupin
Aquilegia	Delphinium	Myosotis
Alyssum	Dianthus	Papaver
Arabis	Draba	Polemonium
Arenaria	Erinus	Potentilla
Armeria	Erysimum	Silene
Aubrietia	Gypsophila	Saponaria
Bellis	Linarias	Violas (Pansy vars.)

Three weeks to two months

Acaena	Genista	Pentstemon
Aethionema	Geranium	Primula (fresh seed)
Androsace	Geum	Saxifraga, mossy
Allium	Helianthemum	Scabiosa
Asperula	Heuchera	Sedum
Aster (hardy)	Houstonia	Sempervivum
Campanula	Hypericum	Stachys
Clematis	Iberis	Symphiander
Coronilla	Iris (fresh seed)	Thalictrum
Corydalis	Lathyrus	Thymus
Crucianella	Lavender	Tunica
Cytisus	Mertensia	Veronica
Erodium	Mentzelia	Viola (Violet type)
Eryngium	Orobus	Wahlenbergia
Erigeron	Oenothera	

Two months to a year

Anemone	Helleborus	Ranunculus
Adonis	Iris	Rhododendron
Aconitum	Lilium	Saxifraga (silvery)
Azalea	Meconopsis	Small bulbs generally
Caltha	Primula	Trollius
Eremurus	Peony	
Gentian	Ramondia	

Nature sows her seed as soon as ripe, but the common practice of gardeners is to plant in the spring, and this season serves very well for rock plants, as well as for

more ordinary garden plants, if only we begin sufficiently early—in February or March—so that the seedlings may have reached a fair size and strength before the vicissitudes of winter are upon them. Sometimes it is possible to procure freshly matured seed in the late summer, and this may be consigned to the frames in November where it will lie dormant over the winter awaiting the impulse of oncoming spring to start it into life.

After the first of January, in this case, whenever there is a good fall of snow the sash are lifted and hooked to the fence in order that the frames may receive a lapful of snow, for nothing so incites little green souls to energy and action as copious draughts of snow broth, especially that thick, soft wet snow that falls so often in March. Often the response to its searching soaking is quite magical, the little green hordes appearing close upon the heels of the melting flakes. I know of nothing quite so exciting as to go out to the frames on a bleak March day and find that spring has been there before us. No sign of her may be visible elsewhere save where brown buds thicken on twig and branch, and chilly snowdrops huddle for warmth on the south side of the rock garden, but there on the brown earth of the frame she has signed her name quite clearly, and left for us a message couched in terms of flowers—Primroses, Anemones, Fritillarias, as the case may be.

The seed left in the frames over the winter is protected only by a light covering of leaves, designed primarily to keep the sun out, and the sash are never tightly

closed, a small prop serving to keep them raised an inch or so to admit of a free circulation of air. In March the leaves are removed, care being taken not to disturb the soil.

While the seedlings remain in the frames watering must be attended with the greatest care and consideration. One thoughtless soaking may cause the loss of an entire summer's hopes, and a drying will cause no less of a catastrophe. A first requisite in this operation is a long-nosed English can which is usually equipped with a very fine spray that releases a delicate mist-like bath vastly refreshing to the sensitive babies, and unlikely ever to over-soak the soil. An ordinary can flows too heavily and on no account should a hose ever be turned upon the frames. A coarse stream washes the seed from the soil, or if germination has taken place, beats down the little plants so that they never more can arise.

Here when the plants are large enough to handle we remove them to small beds near the frames that have been especially prepared for their comfort. These are raised a few inches above the path and enclosed in flat stones set endwise, and the soil therein is light and sandy, and moderately enriched with very old manure well dug in. In these beds the little tufts and rosettes and trailers remain, protected from heat and storms by the lath screens, until they are of a size to take their place in the colony of the rock garden, or wherever they are needed.

It is perhaps not worth while to raise from seed, save

for reasons of economy or where they are required in great numbers, such plants as may be easily acquired from nurseries. But there are all sorts of delights that we may secure in no other way. In the past two years I have raised a great number of Primroses from seed—several thousands, indeed, making the frames do double duty by planting them both in the early spring and in the full fall. Also a lot of small bulbous plants—Scillas, small Hyacinths, Colchicum, Lilium tenuifolium, and Fritillarias, including even the great Crown Imperial. The bulb of this splendour of the spring is of great size, and when I look at the narrow blade-like leaves in the frame and visualize the tiny bulb from which they emerged, I hardly dare hope for the realization of their gorgeous maturity; but gardeners learn to hope against many odds and to enjoy their successes to the full.

My collection of wild Irises from many lands has been almost entirely raised from seed searched out in catalogues of all the flower-growing world; also a number of Clematis species—yellow-flowered kinds and some of our Western species; a goodly company from the Colorado mountains and West, as well as a great majority of all the alpines that I have ever possessed. Along this way lie continuous variety and provocation; one goes vested with a delicious sense of adventure, ready for miracles, steeled against disappointment, happy, anyway, and blessedly busy. What more can any occupation offer?

CHAPTER XI

The Meek That Inherit the Earth

Oh, that the mischief-making crew
Were all reduced to one or two,
And these were painted red and blue
That everyone might know.

I HAVE to confess to a rather foolish fondness for nearly all green and growing things. Yet bitter experience has taught me not to be too trusting and confiding in my dealings with them, for there are many plants not too scrupulous to take advantage of a likely situation to indulge in behaviour the reverse of seemly.

"Not all weeds be *weeds*," was a favourite saying of an old Irishman who used to help me in the garden; by which cryptic remark he meant that many accredited garden plants have the manners of weeds. And this is particularly true in the rock garden where conditions give them a terrible advantage. Among the stones and boulders plants possessing prowling rootlets or fast-travelling rooting stems are enabled so firmly to entrench themselves as to resist successfully all efforts at eradication, issuing forth from their stronghold to strangle and destroy whenever one's back is turned. One black sheep among the flocks of white ones may do untold damage, and without a hint as to which the black sheep may be—for unfortunately those that are

horrid are quite as green and fresh as those that are very, very good—one is sure to plant the roots of endless toil and discouragement—a crop that always thrives.

Of course, in naming the miscreants one may sometimes do an injustice, for plants behave very differently under different conditions; the rampant spreader in one garden may conduct itself with the extreme of conservativeness in another—one man's weed be another's delight. But there are certain plants, dwarf in stature and of creeping or trailing habit, that are widely recommended by nurserymen and in many gardening books as suitable for rock gardens, that may without hesitation be put on the black-list, at least where the rock garden is concerned. These, so far from being suitable, are veritable mischief-makers and reprobates, once they gain a place among the little people of the hills. Indeed, in the rock garden these plants are not simply a nuisance, they are a deadly peril and should not only be debarred from the actual kingdom of the rock plants, but from its vicinity, for theirs are a will and an efficiency that make short work of covering a few yards, and they will be at the treasure most certainly before a single summer passes over their plotting heads.

Nearly all these green evil-doers are meek and ingratiating of bearing, are low-growing, and have a pretty trailing habit that attracts the novice while putting him off his guard. And let me here sound the warning that mere dwarfness should not constitute the open-sesame to the sacred precincts of the rock garden. Some of

the most fleet-footed and conscienceless of plant desperados are little and low and have the appearance of gentle and guileless saints. Who would suspect the Ground Ivy of evil intentions, much less of the vigour to carry them into effect? Yet the damage I have suffered from the destructive powers of this meek-looking little plant alone could not be set down in an entire chapter of this book.

Nevertheless the Ground Ivy with other devastating pests is commonly given a good character as a rock plant in some catalogues and in numerous books on gardening. Indeed, the tyro trustingly making his list from these sources has small chance to avoid desperate difficulties, for the veriest scamps are furnished with alluring recommendations, and no hint given as to their piratical tendencies. Add to this the blithe unconcern with which seasoned gardeners urge upon the grateful beginner wads and sods of the worst of their green tribulations, it is safe to say that the newly fledged rock gardener is in for trouble as certainly as sparks fly upward.

From certain signs he may, however, take warning and save himself at least a little anguish! Avoid as the very plague itself plants offered as "useful for covering rough banks and for the rock garden." This is a meaningless and misleading phrase, for no plant that is sturdy and pervasive enough to cover effectively a rough bank is a safe companion for small, choice plants; nor would any certified rock plant be caught for a king's ransom spreading promiscuously over rough waste places.

Again, numerous plants have won for themselves in their wanderings down the years extremely significant names that should ring warningly in our ears. Well may we be suspicious of all bearing such titles as Creeping Charlie, Creeping Jenny, Meg-many-feet, Wandering Sailor, Robin-run-in-the-hedge, Mother-of-thousands, Gill-over-the-ground, Ground Ivy, Hen-and-chickens —all suggestive of congenital restlessness and a desire to roam. Not for nothing have these names been bestowed, and we may be assured that they who have earned them will prove highly mischievous and destructive if given the run of the rock garden.

Prominent among the ravagers are three of the Labiateae or order of Lipped Flowers—Ground Ivy, Bugle, and Dead Nettle. All are quite pleasing to the eye and hide their felonious intentions beneath a timid and modest mien.

The worst of them is the Ground Ivy (Nepeta, or Glechoma, hederacea), alias Creeping Jenny, Roving Charlie, Robin-run-away, etc. This plant is powerful, inexorable, and prodigiously ambitious. A rock garden anywhere in the neighbourhood becomes the very lode star of its existence, toward which it makes its way over, under, and around all obstacles with a single-mindedness and pertinacity that is amazing to behold. Once within the coveted territory, and it always gets in, it immediately embarks upon a campaign of murder and usurpation, and is never more to be dislodged. One might as well sell out and move to a new place—preferably in another county altogether—when

once the Ground Ivy has got into the rock garden. Doubtless this sounds extreme to those who have not suffered, but twenty years ago in my first garden this innocent-appearing trailer, the gift of a kindly neighbour, was able to frustrate entirely my efforts to grow rock plants, and I have recently visited this place and found the invader occupying every ledge and corner of that rock garden to the exclusion of every other form of plant life, and even extending into the lawn with every appearance of a fair chance of making a clean sweep of the grass as well.

The Ground Ivy is a slender trailer with a pretty, garland-like habit of growth. The leaves are soft and rounded, lightly scalloped, sometimes stained with white or purple and, when crushed, are aromatic. The small lipped flowers are lavender in colour. Once this little plant was respected for its supposed medicinal virtues, which explains its frequent presence in the neighbourhood of old gardens where it was encouraged for the sake of its usefulness. Parkinson wrote: "It spreadeth as a garland upon the ground"; but it must be remembered against it that it is as a pall that it spreads upon the rock garden.

Bugle or Carpenter's-herb (Ajuga-reptans) has also naturalized itself in the neighbourhood of old gardens and it, too, doubtless, had a place in the primitive pharmacopœia of the early settlers of our country. Its sturdy character and tenacious hold on life have enabled it to hold its own against the strongest growing weeds and grasses of the fields and roadsides, so that it is

quite plain that plants of less robust growth would have no chance for life in its neighbourhood. In the rock garden it quickly spreads its thick, mat-like growth over all and sundry, obliterating all trace of the more delicate civilization that flourished before its vandal hordes began their march of destruction.

But the Bugle has its quite legitimate uses. Its mantle of dark shining leaves, that colour to lustrous purple in the autumn, is a pleasing embellishment to the ground beneath trees or on banks where it is difficult to care for grass, and its many spikes of blossoms, white or purple, make it very gay in spring. There are several forms, somewhat more choice than the common one.

The Dead Nettle (Lamium maculatum) is a coarse, hairy little trailer, devoid of heart or conscience. Its heart-shaped leaves exude when crushed so unpleasant an odour that this alone might be expected to constitute a reason against its presence in gardens. This fault, unfortunately, is seldom recorded against it, nor the fact that it is a practiced runner warranted to cover wide areas in a single season. In many localities it has escaped from old gardens—for it also was once credited with healing virtues, as were so many of its family—and trails about the fields and roadsides to tempt the unwary with its tiny cheerful blooms. I often see it in newly made rock gardens, setting out upon its campaign of murder and carnage with the mien of an innocent explorer, and my warnings against it are seldom heeded.

The most winning and irresistible of all these green destroyers is Money, or Moneywort, Herb-twopence, Strings-of-Sovereigns, Creeping Jenny, Down-hill-of-life, Wandering Sailor, Meadow-run-a-gates—to name but a few of its tell-tale titles. This little Creeping Loosestrife (Lysimachia Nummularia) is really a charming thing with its long slender branches set with round, bright green leaves and many blossoms the shape and colour of a gold piece. Its wreathing prettiness may be put to a hundred pleasant uses where a fresh green carpet is desired; but in the rock garden its slender branches flung to a distance of several feet in all directions and rooting at every joint, Money becomes a dangerous indulgence. It is almost impossible to root out once it gets a hold, nor can it be confined to any one locality. I have known it to take possession of an entire lawn, finally killing the grass; but it grows charmingly in the joints of stone steps, and one could not have a brighter or more cheerful companion along a shaded walk.

The terrible Goutweed (Aegopodium Podagraria) has few sponsors among those who write about plants or sell them. But unfortunately it is one that is frequently passed over the fence from one gardener to another without explanation, and its pretty green and white leaves and flat lace-like heads of flowers make it a most acceptable gift to the uninitiate. All should be warned, however, that it is one of the most deadly of the subterranean workers, making roots at an amazing rate and matting them beneath the stones and among

the roots of other plants with a thoroughness quite hopeless to combat. In shaded corners where little else will thrive it may be tolerated, but even there it will bear watching, for it has no mind to remain in obscurity. One of its common names, Garden Plague, is well earned.

Hardly less troublesome and dangerous is the California Rose (Calystegia pubescens) that tempts us with lovely, frail, double pink Morning Glories and an attractive twining growth. But this plant, too, is an efficient subterranean worker, sending up sturdy shoots yards from the parent plant, thus bringing wide areas quickly within its devastating clutches. Gardeners who live where the mercury never falls below the zero point must in particular beware of this plant, for cold is the sole force that is able finally to eradicate the masses of white rootlets that quickly infest the soil in all directions.

The airy Cypress Spurge (Euphorbia Cyparissias) is included in many nursery lists of "plants for the rock garden." And I must confess to a kindly feeling toward it myself, though I know full well that it is no subject to admit among choice plants. Often we find it in country neighbourhoods, loitering outside some old garden gate, hoping, mayhap, to be once again admitted to the circle of proper garden flowers where it sometime held a place of esteem. But it is unquestionably a mischief-maker, coveting its neighbour's territory, and going after it in no uncertain manner. I allow it to linger along the edge of my bit of woodland where it

can do small harm among the Ferns and Violets and Columbines that make up the company of this borderland, but to be on the safe side I now and again pull up a handful and throw it over the wall, where it is welcome to take root and form an outlaw colony if it so pleases.

Those who dwell south of Philadelphia must also be on their guard against the velvet wiles of Helxine Soleirolii, a small Corsican with a close, mat-like growth of tiny shining leaves that advances pitilessly over the ground where conditions are to its mind (it likes dampness), smothering all that lies in its path. Even the "Standard Cyclopedia of Horticulture" sponsors this plant as, "A good plant for the Alpine garden." And I often see it recommended as a good ground-cover for small bulbs, but even these intrepid venturers win through its stifling folds in a debilitated state, and with but half a heart left to unfold their rejoicing blossoms. In the climate of New York it is not invariably hardy, so that a winter of extreme cold usually puts an end to it.

Ranunculus repens is also deservedly on the rock-garden blacklist. Its sobriquet of Meg-many-feet was well chosen, for it runs in all directions with incredible speed, and not all its store of golden buttons compensates for the damage it does among our treasures.

The Crown Vetch (Coronilla varia) is another graceless freebooter masquerading in many catalogues as a "desirable" rock plant. Sufficient to say that in England it is used to cover railway embankments.

Hieracium aurantiacum, the Orange Hawkweed, or more significantly, the Devil's-Paint-brush, not only spreads a mat of hairy leaves over the ground, but showers outlying districts with quickly germinating seeds. In many localities it has become a dangerous pest, giving endless trouble to farmers, but it nevertheless still figures on some nurserymen's lists of plants fit for the rock garden. Its richly coloured blossoms are undoubtedly attractive, and it is dwarf in stature, but it would be difficult to find a plant calculated to do more mischief among choice subjects in a shorter space of time.

Other plants that should, because of their rapid underground workings and insatiable desire for supremacy, be rigidly excluded from the rock garden are, Crucianella stylosa, Anemone canadensis, Oenothera speciosa, Lippia repens, Scutellaria hastata, and the Field Chickweed (Cerastium arvense), this last a most lovely little plant but whose mats of thread-like rootlets are never to be gotten rid of once they have found a foothold among the stones. It is one of the scourges against which I must wage constant warfare in my own rock garden. It came in as a stowaway, entwined about the roots of a plant with proper credentials, but quickly strangled its carrier and started forth to conquer the world. And now not a week passes when the ground is not actually frozen that I do not drag out handfuls of the Field Chickweed from one part or another of the rock garden. I make no real headway against it, only keeping it at bay by the utmost watchfulness, and I know that should

I go away for a month or so it would take all that I love and cherish.

Of course if only to cover an area of rocky ground with some sort of bloom and verdure is all that is desired, these plants against which I have spoken ill will accomplish the task with great effectiveness, waging picturesque warfare against each other, and none need care what the outcome may be. But if the intention is to make a collection of choice alpine and rock plants and to house them well and happily, no one of these small marauders should be admitted. Do not be led astray by the desire to fill up the rock garden quickly; let its furnishing be a labour of patient and discriminating love. Be content to let the good company increase in numbers by the slow stages of careful selection, and the reward will be beyond your visions and there will be endless labour saved.

My list of trouble-makers can probably be added to by all who number a rock garden among their blessings; but I think I have named the worst. But here is a further list of plants which, while not by any means to be debarred, will bear watching, and whose increase should be kept within bounds. The majority of them cause confusion by the freedom with which they scatter their seed, but some also spread from the root with greater zeal than may be allowed among very small and choice plants. All are lovely and desirable, and simply require a little restraint when they threaten to become too rampageous. Verbascum phoeneceum; Papaver rupifragum; Linum perenne; Corydalis lutea; Tunica

Saxifraga; Geranium sanguineum; G. tuberosum; G. Robertianum; Corydalis glauca; Dianthus Armeria; D. deltoides; D. gallicus; Cerastium tomentosum; Arabis alpina; Alyssum saxatile, Armeria formosa; Campanula carpatica; C. glomerata; Oenothera pumila, and other small Oenotheras; Star of Bethlehem; Anchusa myosotidiflora; Aquilegia canadensis; Stellaria Holostea; Allium moly; Acaenas, all; Asperula odorata; Mazus rugosus; Lippia repens; Gypsophila libanotica; many Sedums including ibericum, acre, album, sarmentosum, etc.

PART II

ROCK GARDEN ADVENTURES

CHAPTER XII

Creating the Landscape

A ROCK garden it seems to me is a delight that every gardener should strive to bring within his experience. It offers more absorbing interest, more variety, more beauty, greater opportunity for adventure for a lesser outlay of money and trouble than any other type of garden. And it may be equally perfect, complete and satisfactory, both from a utilitarian and from an artistic standpoint whether two feet square or covering an acre.

Indeed, size has nothing to do with its beauty or relevancy, nor has expense, for, while there may assuredly be rock gardens of vast extent, costly to build, to furnish, and to maintain, the councils of perfection may be as truthfully served upon the smallest plot, by one who makes use only of such materials as are at hand, who raises his plants from seed at an infinitesimal cost, or collects them for nothing, and who may give no more than half an hour daily to the care and conduct of the miniature kingdom. As a matter of fact it is in just such small, personally cherished gardens where we far more often find rare and difficult plants well grown and happy than in more ambitious works, where their care is largely delegated to paid guardianship that is so often unsympathetic and lacking in intuitiveness.

And no place is so small or so unpromising but an interesting and efficient rock garden may there be brought into being. Our English gardening brethren inveigh continually and emphatically against the presence of trees in the neighbourhoods of rock gardens, yet a vast number of American wild flowers grow naturally beneath deciduous trees, and furnished only with these and the many small bulbs that thrive in shady places, a rock garden built in light woodland may be filled with interest for many months of the year, a thing of beauty to rejoice the most exacting eye. And almost any other sort of situation, barring a swamp, may be made to furnish a fitting and comely home for choice rock plants and alpines if knowledge of their desires and necessities guide our contriving.

It is frequently said to me, "We have no suitable place for a rock garden," or, "We have no room for any garden at all." But in point of fact, *if you have land at all*, you have a place for a rock garden. Naturally some situations are superior to others for the purpose, both as regards their physical and artistic possibilities, but none is hopeless where the will to grow these infinitely fascinating plants strongly animates the grower. Many a plot now deemed too small to compass more than a scrap of lawn and a few Rose bushes or Geraniums might boast a really fine rock garden, displaying hundreds of rare and beautiful plants, well housed and visibly rejoicing. And the owner who now groans under the dull routine of keeping the grass shorn, and shrinks from the horrid task of removing insects from

THROUGH THE ROCK GARDEN TO THE LITTLE WOOD

(Mid-May. Nepeta in the foreground, Golden Alyssum, Columbines, Violas, Geranium grandiflorum beyond)

the exacting Queen of Flowers, would find relaxation and unfailing recreation in providing "top hole" service and entertainment for his small and ever-responsive guests from many lands.

When I went to England the tiny blazing rock gardens seen on every hand, and in the most unlikely situations, were a source of continual amazement and delight to me. I saw many grand and ambitious ones as well, including Mr. Farrar's beautiful gardens at Ingleborough and the astounding erection at Friar Park, covering several acres and made in realistic imitation of the Matterhorn and its surrounding peaks and valleys; but the tiny gardens of the humble, contrived often with the most touching and sometimes amusing ingenuity in situations seemingly impossible, testifying so eloquently to the love and appreciation actuating their creators, appealed to me as by far the most significant and inspiring manifestation of the Britisher's great and ancient love of the craft.

Window boxes were skilfully requisitioned for the purpose, the sloping roofs of cottages and sheds, old and crumbling walls, bits of crazy pavement, infinitesimal front yards, and all supporting adequately, not Creeping Jenny, Bugle, easy Sedums and the like, but rare and exclusive alpines—Gentians, wee Campanulas, brilliant Pinks, high-mountain Pansies, treasures that would be a source of pride anywhere.

I remember, in particular, in a manufacturing town in Scotland—a town as smoke-darkened and unlovely as any the New World has to show—a row of workmen's

cottages whose sole "grounds" consisted of a bank sloping steeply to the street. But this unlikely steep had been utilized to the utmost, having been cunningly faced with stones and planted with alpines so skilfully that from end to end of that otherwise poor and squalid block there stretched a breadth of gay and smiling flowers.

Of course, viewed as works of art, many of these little gardens would be thought absurd and lacking in grace and congruity; more than enthusiasm and ingenuity would be required to bring them into harmony with their surroundings. But to the lover of flowers they are a delight, and the lesson to be gleaned from them most valuable. It shatters the widespread illusion of the terrifying, aloof alpine, that thrives nowhere save on dizzy mountain peaks, or on elaborately executed and expensive replicas of them designed to fool the small mountaineer into a belief that it is merely visiting a neighbour peak; the illusion of the alpine as a wilfully capricious and captious individual, only to be caught and mollified by the rich man with many gardeners and elaborate contrivances or the thoroughgoing crank who spends all his days and thought in endeavouring to reconcile these reputed irreconcilables to a home other than their natural one.

This misconception of the alpine has been very general in our country, and still is, for the matter of that. When standing before an exceedingly creditable exhibition of rock plants at the New York Flower Show a few years ago, a handsomely gowned lady thus addressed

me: "There is no use trying to grow any of those things. It is a pure waste of time and good money. I have several *handsome* rockeries, and an expert gardener, and though we have tried all kinds, they all die, except Sedums. If you take my advice, you'll stick to Sedums unless you are a millionaire and don't care what your fun costs you." I mournfully visualized those "*handsome rockeries*"—giant mausoleums, no doubt, for the delicate nymphs and fairies lost in their terrible fastnesses—the while I hugged to my heart the knowledge of my tiny, hearty Campanulas spouting from the crevices of the garden steps, of gray mats of alpine Pinks festooning the low walls, of sparkling mountain Poppies running wild in the gravel paths, of Androsace Chumbyi, heady with liberty, spreading about over a flat bed of common soil in the nursery like any carefree weed with the world as its playground; these, and many more of their kind, all happy and hearty and exuberant without the consideration of a rockery *at all.* But the lady voiced the belief of many, and, I grieve to say, the experience of not a few.

Nevertheless, *alpines are for you,* whether you live North or South, East or West, or in the Middle West, as I long ago found they were for me, when I took the trouble to gain some understanding of the characteristics of these little mountain people, and to supply the simple conditions with which all but a few of them are quite satisfied. For years I grew them without a proper rock garden at all, finding suitable homes for them in the crevices of walls and stone steps, along the stone-edged

flower borders, and in little prepared beds in the nursery. But while this is quite practicable for a great many kinds, it is much more delightful to give them a home to themselves, where the more difficult kinds, as well, may be made snug and safe, and where all show to much greater advantage than when seen in competition with the fat border perennials, whose overfed charms detract from the special quality of clean and sparkling brilliance that characterizes so many of the small mountain plants.

It is well, perhaps, at the outset in thinking of a home for rock plants to discard the term "rockery," as having come, because of countless awful examples disfiguring gardens in past years, to mean primarily a place where rocks are harboured and where plants find their graves. Unhappily there are many of these useless excrescences still in existence, mounds of miscellaneous stones and boulders piled in some unfriendly corner and draped with dank strands of Ground Ivy and ailing Nasturtiums, and bitter with the memory of tender lives lost in their gloomy hollows and fissures. May they all speedily be razed and the outraged stones put to some real and worthy service!

Even the newer term of "rock garden" seems in some danger, alas, of being too literally interpreted, and one sees gardens where the builder has quite patently become so enamoured of his stones as to have lost sight of the fact that they are, or should be, quite secondary in importance to the plants that dwell among them—merely a means to an end, and not in themselves, so to

speak, the whole show. Though it must be understood that the greater one's appreciation of the inherent beauty of stones, and the more sympathetic the understanding of their place in Nature, the more success shall one have in adapting them with truth and sincerity to fashioning a rock garden of real beauty and utility.

When I began to think about building my own rock garden I found that while I had read practically everything that had been written in recent years dealing with the subject, I felt when confronted with that stark slope and the vast heap of stone beside it as helpless as the poor lad in the fairy tale set to perform an impossible task between dark and dawn in order to win the Princess. Nothing I had read appeared to apply exactly to my site and conditions. I seemed to have nothing definite to go on, and it seemed impossible to make a beginning, to lay the first stone—and there were no smart little fairies to come to the rescue and accomplish the herculean chore the while I sat and dreamed of the reward.

The site chosen was the northwest corner of my demesne, an irregularly shaped piece of ground about fifty feet square, rising gently to the west toward a belt of light woodland, only a small corner of which lies within my boundaries. This woodland provides a background of great beauty and is far enough removed not to unduly overshadow the garden. My wish was to create a gracious and natural scene in harmony with the wood beyond, and at the same time to provide highly comfortable quarters for a wide variety of rock

plants. But try as I would I could form no definite mental picture of the form this natural scene should take, no clear vision of the distribution and contours of the mimic hills and valleys I hoped to see materialize under my hand.

Finally, after two discouraging and exhausting days wasted in placing and displacing heavy rocks, aided and impeded by two mystified Italians who hourly became more convinced of my lunacy—and I am sure discussed it freely in their own language, between eager assurances of "Me make-a-de mount, me get 'em"—I bethought me of the very obvious expedient of going to headquarters for light. For where but to Nature herself, when trying to imitate her, should we go for inspiration and instruction?

Daily thereafter, during the progress of the work, I visited, sometimes accompanied by the two sons of Italy, more mystified and increasingly vocal, a stretch of rocky hillside near by, striving to grasp the underlying principles of its reposeful charm, noting the noble simplicity of its topography, how calm and restrained the outcroppings of rock from the embracing earth, conveying a sense of unshakable stability; how sincere and assured the boldness, and how "boulder led to boulder in an ordered sequence," creating a consistent and coherent whole instead of the meaningless jumble of spikes and lumps and angles too often brought together in artificial rock work. And how confidingly the verdure nestled to the stones; how luxuriant the Ferns and Columbines spouting from the crevices, the

Dutchmen's-breeches in the leaf-mouldy hollows, the Wild Pinks (Silene pennsylvanica) and Saxifrages along the narrow ledges and in the short dry grass near by.

And this is the best advice I can give to any who are projecting a rock garden, who have one in the building or already built—for no rock garden is ever *finished;* there will always be improvements to be made, mistakes to rectify, fresh possibilities realized—to seek out a spot in Nature that has some kinship to the space you have to deal with, whether flat, or a hillside, or a hollow, where rocks outcrop and green things cling about them, and strive to make your own the secret of its congruity and simple strength, not copying it slavishly, but endeavouring to endow your artificial landscape, however small, with something of that quality of serene spaciousness, of uncluttered freedom that almost invariably characterizes the natural one.

"None of Nature's landscapes," says John Muir, "are ugly so long as they are wild." And the lessons the builder of rock gardens may derive from Nature's examples are infinite and of incalculable value. Her schools are on every hand; yet many rock gardens are absurd travesties, meaningless burlesques of Nature's work; but if you go to learn of Nature in simplicity and sincerity of heart, you will be most surely saved from thus grievously sinning against her.

* * * *

It is generally accepted by the many writers upon the subject that the best site for a rock garden is one situated in the open, well away from trees or any object

that will cast a shadow over it. But these writers are nearly all English, dealing with the problems presented by their mist-wreathed and comparatively sunless climate, where the rainfall is heavy and the winters mild and damp. But here, where our summers are so long and hot and subject to long periods of drought, the winters generally cold and snow-blanketed, we have not the menace of damp so pressingly confronting us, and we find many of the sun-loving alpines grateful for a degree of shadow in the afternoons of the long summer days. This is true of most of the Campanulas, Geraniums, Erodiums, Violas, Saxifrages, and others. Many kinds of Pinks, on the other hand, will endure the most burning localities, as will Poppies, Aethionemas, Achilleas, some Androsaces, and most of the exotic Sedums. (The native Sedums, a good many of them, thrive naturally in shade.)

Of course, a really efficient and commodious rock garden will provide all degrees of sun and shadow; some slopes falling away abruptly to the north, where the soil will be always damp and cool for plants that revel in such situations; others to the south for the comfort of those passionate sun-lovers who cannot endure a moment of damp and desire always to be caressed by the great orb, and high plateau where may disport those hardy and joyous creatures—like the Alpine Poppies—that fear not sun or winds or frosts, meeting them as playfellows, revelling in wild and frolicsome games on the top of the mimic world.

But if you are unable to *build in* these various and

several amenities, a good deal that is comforting as well as decorative may be done by judicious and thoughtful planting of evergreens and lightly made flowering trees. Keep always in mind the urgent and definite need of the alpine plant for light and a free circulation of air, and do not *shut it in*. Plant fairly closely on the north for shelter from winds and storms, and more lightly on the west, to cast an alleviating shadow in the long summer afternoons over a part of the garden, but leave the east and south freely open; for the morning sun is the sun of gladness, of refreshment, of rejuvenescence, and the south wind rejoices man and plant.

The ground of my own rock garden slopes naturally toward the east, the trees at the back, or on the west, casting a light shadow over its upper reaches in the afternoon, leaving the lower portion full in the sun and unsheltered. It is a good situation, though I could wish for more *high* sunny places for those plants to which such a position is a delight.

If your only available situation lie under trees, do not abandon the project, but build as finely as you can, and set out to make a comprehensive collection of American woodland flowers, well grown and harmoniously disposed. You will be surprised at the beauty and variety of the material to your hand, but do not punish sun-loving alpines by condemning them to such uncongenial quarters.

Where possible it is pleasant to lay out our stretch of "natural landscape" out of sight of formal and artificial surroundings, whether of house or lawn or garden;

for a sense of seclusion, of aloofness from things conventional and civilized, adds appreciably to the charm and reality of the scene. This, on the majority of suburban lots, is usually impossible, but something may nearly always be accomplished toward preparing the mind for wild and rugged scenery by intelligent arrangement and planting. If the approach to the rock garden may lie by way of a pleasantly informal path, or through light woodland where occasional outcroppings of rock and patches of low evergreens suggest the nearness of more rugged conditions, a happy impulse will be given to illusion. But in any case some sort of setting should be staged; the mountain landscape must not rise abruptly and without reason or explanation from the midst of a smug and close-shorn greensward, nor should it be surrounded by fence or clipped hedge or any other formal and conventional adjunct. Each builder must here turn creator and materialize a harmonious setting for his brooding hills and smiling valleys, his dark gorges and windy plains—and this, I am bound to say, is the most difficult and least often successfully solved problem that confronts us. To bring this bit of wild scenery into harmonious relationship with its surroundings on a small suburban lot, to prevent its appearing an alien, a dragged-in thing, is no easy matter and one that I have not yet mastered with any great satisfaction to myself. But few gardening problems are unsolvable, and time and constant striving can accomplish wonders.

If the ground whereon the rock garden is to be built

is level, the earth should be removed (putting it to one side, if it be of good, light quality, for use in the building) to a depth of at least twelve inches, and the excavation filled in with broken stone to insure free drainage, that first and most definite essential to the health and happiness of alpine plants. If the ground slopes naturally —and on such a site the best effects may be accomplished with the minimum of labour and material—a more shallow excavation will be sufficient, particularly where the subsoil is of a rather light nature, allowing the excess moisture to drain away of itself. Next, mark out an agreeably meandering course for the main path or paths, keeping in mind the necessity for reaching easily the various points of the garden. There may be one or more important paths, according to the area of the garden, and for a means of access to the more sequestered regions a trail of flat stepping-stones may be inconspicuously laid across the hills and dales after the construction is completed.

I prefer the paths narrow rather than wide, as being more suggestive of mere trails. Those in my own garden are no more than three feet wide at any point but, of course, the size of the garden will govern the width of the path; and their verges should not be sharply defined or exactly regular. Gravel and neatly kept turf paths seem to me out of harmony with the idea of a natural scene, but they are a good deal employed. A very pleasing path is made by laying, flush with the surface of the earth, large, flat, irregular stones of the same geological character (never blue-stone slabs) as

those used in the main building and planting between and around them such little creeping things as the Thymes, Veronica repens, the Mossy Arenarias, and others of their kind. This gives a dry walk under foot in all weathers and is in character with its surroundings.

In a shaded region I am making a path of leaf-soil, piling in the eaves thickly n autumn, and grinding them gradually underfoot, helped by the action of frost and rain, to mould. And I am thinking that when I shall have applied a sprinkling of coarse grit to the surface there will be a path, firm yet springy to the tread, along whose verges Primroses, small Ferns, and many a plant that loves cool conditions and a fibrous vegetable soil will find a happy home.

Rough stone steps add immensely to the charm and interest of the paths wherever they may be with reason introduced But they should invariably be, while strongly built and serving their proper function without danger to life or limb, of the most informal character, appearing, as much as may be contrived a part of the general geological formation, and never laid up in cement, or composed of dressed stone or slabs of blue stone. Earth between the joints enables us to tuck in tufts of Fern and small fountains of Corydalis, and wreathing Kenilworth Ivy—never more than two or three kinds to a flight—where the situation is shaded; or wedges of Thyme and wads of Pinks or Campanulas where the sun reaches freely.

Steps of earth faced with rough logs are also in keeping where stone is a consideration, and many small

green things will find a felicitous setting and grow happily in the chinks and corners.

If choice may be made of the kind of stone used in building the rock garden, a rather soft variety, like sandstone or certain of the limestones, is to be preferred as having the quality of absorbing and holding a store of moisture for the seeking, ever-thirsty roots of the plants. Tufa, a volcanic rock, grayish or reddish in colour, is very soft and porous. It is to be had of several nursery concerns in the East at not too great a cost to make its employment in the building of small rock gardens practicable. It is agreeable to plant life, but has the demerit of not appearing sufficiently rugged and stable quite to satisfy the critical eye.

But the majority of us must make shift with whatever is most cheaply and easily to be had. The stone used here was garnered from an old wall that bisected the place, and is largely a very coarse granite, a mixture of quartz, mica, and rosy feldspar, rather hard, but not unsympathetic, and much of it is worn to a quite beautiful expressiveness.

It required a good deal of drilling to bring my two Italians to a realization of the fact that all sides of a boulder are not equally presentable. But they finally entered good-humouredly into what they appeared to think a rather foolish game invented by me for their entertainment, turning and twisting the heavy rocks untiringly, exclaiming as each fresh surface came to view, "Him good one! Him fine front!" How pleasant to work with out of doors, by the way, are these

children of the sunny peninsula, how innately sympathetic toward plant life! They all have a way with stones that makes them invaluable helpers in building a rock garden if you can once succeed in clearly conveying to them what you have in mind.

Stone from the nearest quarry, just as it comes in irregular, angular pieces of all sizes, from comparatively small pieces to large rocks, will serve every necessary purpose. It is a great advantage, so far as the beauty and harmonious appearance of the rock garden goes, to have all the stone of a like geological character, and there will be less matching of strata and fitting of joints necessary when this is the case. Rounded "field boulders" are difficult to use and unsatisfactory in every way, and should always be avoided if possible. I have had at a pinch, to make use of a few, and find their rounded surfaces ever a menace to the stability of the construction and, moreover, it is impossible to form a tight joint between them, so that soil is easily washed out through the gaping cracks, exposing the roots of plants and making all sorts of trouble.

I referred earlier in the chapter to the stones of the rock garden as merely a means to an end. Part of that end is to provide a beautiful and becoming setting for plants, but the greater part, and by far the more important, has to do with their health and comfort. "The only essential part of the stone," says Mr. Farrar, "from an alpine's point of view, is that it should be buried underground, so that one's roots may run gripping along the sides, and penetrate underneath in search

of the moisture that is always there." Mr. Meredith councils that quite one third of the stones employed should be under ground, so that however far the roots may travel—and many of them are a yard and more in length with ramifications of rootlets sent prowling out in all directions like a great river system, drawing sustenance from widely separated sources—they will everywhere find coolness and shelter and refreshing drink.

When you know whither you are going, when you have formed a fairly clear picture in your mind of what you intend the ultimate physical formation of your ground to be—you will of course inevitably change and modify your plan as you go along—begin at the lowest point, setting your stones and filling in the earth behind them as you proceed, seeing to it that every stone is strongly and unshakably set and, as they invariably lie in nature, *on its broadest base;* and that every crevice behind and beneath it is well rammed with soil, in order that the indefatigably seeking rootlets may be preserved from wandering into air-pockets and so meeting their deaths. This point is of the utmost urgency and may be thoroughly attended to only while the garden is building. Afterward it is too late and we must accept our losses knowing that we might have prevented them.

As the hills arise under our hands many blocks of stone will be buried quite under ground. The poorest pieces from a decorative point of view may be used for this foundational purpose, preserving the finest for the

bold shoulders that thrust through the hillsides, the cliffs and ledges and the stout abutments. No stone should be allowed so to project that it will shield plants growing below it from the rainfall; each stone should be laid so that it slopes *inward* and *downward* in order that the precious moisture may be sent toward the roots of the plants instead of being directed away from them, and in the interest of permanent stability, each exposed stone should be buried at least a third of its height, with the earth well rammed and settled about it so that it may be stepped on if necessary without becoming loosened or dislodged.*

In this infinitely delicate and fascinating work of moulding the physiognomy of a landscape we can but feel our way, working with what taste and truth we may, steering away sharply from the spectacular, the pretentious, the weakly fussy, and from all rigid balance and formality; striving for strength and simplicity and a pleasing variety of contour, setting each stone with method and intention, and never just piled up anyhow.

Last summer when I had explained to an interested visiting lady how the exceedingly simple and unpretentious arrangement of my rock garden had been accomplished, she exclaimed, "*Oh*, I had been told that the way to make a rock garden look natural was to stand with your back to it and *throw on the stones!*"

Heaven forbid that there are many councilors spread-

---

*This point cannot be too greatly emphasized. Remember that the plants must feel firmly anchored, secure, if they are to grow, and only a firm, unshakable construction can give them this sense of security.

ing such confusion abroad in the land. But these haphazard rock gardens, appearing as if Nature had drawn a kindly veil of green over a pile of discarded stones, are rather discouragingly usual, and of course no self-respecting alpine will grow in them. We should realize that in building a rock garden we are painting a picture, not simply daubing paint on a palette, and that we must have some vision, real or mental, to guide us.

There is no need for an elaborate scheme of lofty peaks and valleys and gorges; a simple hillside, truthfully wrought, may be full of beauty and charm, and furnish a glad home for all sorts of dainty and interesting plants; and even the perfectly flat or only slightly raised rocky bed or border, carefully drained, and with the stones well placed in relation to each other, has untold possibilities for beauty and enjoyment.

Where natural outcroppings of rock occur, as is so often the case on country estates and even on suburban lots, there is opportunity to create rock gardens where little actual building need be done. But it is commonly necessary, nevertheless, to go to considerable trouble to convert these situations into safe and satisfactory dwelling places for the desired variety of rock plants. Often the crevices are tight and shallow and the pockets not deep enough to hold sufficient soil and moisture to supply the needs of the plants for more than a short time. By means of crowbar and drill these pockets may be widened and deepened, and others may be created by the use of loose stone and cement. Sometimes the expanse of bare unbroken rock is out of proportion

to the area that may be planted, and it then becomes advisable to break up the surface of the rock by the use of an explosive, or by means of hammer and drill; or to build against it terraces or ledges of earth and stone, made stable if necessary with cement, used, however, with great restraint and as inconspicuously as possible.

In most cases it is desirable to remove the natural soil entirely, ramming the pockets and fissures with fresh soil of whatever type required. Of course where the existing soil is an open fibrous leaf-mould, it is suitable for a good many kinds of plants, but even so it is best removed and mixed with a little sand and loam and replaced where it is wanted.

Many of these rocky situations are heavily shaded, and sometimes just thinning out the trees intelligently will render them practicable as homes for a variety of flowers and ferns, for there are many that do not object to such conditions. If, however, one's urge to grow the sun-loving alpines is so great as to induce the cutting down of the fine trees, all low-growing bushes and evergreens, such as Cedars, should be left in place, to soften and veil the rugged outlines.

CHAPTER XIII

The Soil

DESPITE the fact that our plants are drawn from so many quarters of the globe and from such widely varying physical surroundings, it is possible over a large portion of the rock garden to use a general soil mixture. In view of the fact, however, that we are unable to conjure up the climatic conditions to which they are accustomed, or to materialize in their behalf other natural factors that at home promote their health and happiness, the preparation of this soil mixture becomes a matter of paramount importance. It must be made to take the place, so to speak, of both father and mother to the small aliens, compensating them for the loss of Nature's fostering care and provision in their natural environment.

Every seasoned rock gardener will have his own recipe for this staple mixture, but whatever the proportions of the several ingredients, the result should infallibly insure fertility, adequate moisture during the growing season, and a free draining away of all superfluous water in order that there shall be no stagnation at any season, but particularly during the winter; in other words, a light, loamy, gritty soil, rich in humus. The following is a good blend for general use, and will

answer the requirements of a large number of rock plants:

1 part good light loam
1 part humus
1 part clean sand
1 part stone chips

This rule may be endlessly modified and varied to suit the tastes of plants to which the table d'hôte is not acceptable. Some will like a greater proportion of sand, some a simple blend of sand and humus, others will desire the loam ration increased, and so on; a good many crave the addition of lime, and some an acid relish. But leaving for later consideration these fastidious ones, a surprising number will find the above mixture quite to their taste without change or modification at all.

The loam used may be from the garden if that be light and friable—not sticky with clay. Clay, where rock plants are concerned, should be avoided at all costs, and where it forms the subsoil of the rock garden it must be dug out to a considerable depth, and on no account should any of it be used in the compounding of the general soil. Clay to nearly all rock plants is anathema; in winter it becomes saturated with water, surrounding the plants with a deadly chill—like sleeping between damp sheets—and in summer it bakes to a hard crust that prevents the free passage of water to the thirsty roots. Free drainage, that most urgent necessity of all mountain plants and many lowlanders, is not pos-

sible where the soil is of a clayey nature. But the soil of many gardens is free from this clogging substance, and where this is the case it may be employed as a part of the mixture for the rock garden. Otherwise a satisfactory material may usually be found in the top-soil of a sunny pasture or meadow.

Humus is decomposed vegetation—leaves, stalks, bark, twigs, and other residue of growing things. When we go into the woods and scrape up the surface soil beneath deciduous trees we are collecting humus; when we pile leaves into a heap in the autumn, turning them occasionally until they are reduced to a brown, damp fibrous mass, we are manufacturing humus, which is also called leaf-mould or leaf-soil. This material is highly nutritive, and the hungry little rock plants—and they are hungry for all they look so refined and ascetic—are inordinately fond of it; for not only does it satisfy their keen appetites, but by reason of its coarse fibrous nature helps to keep the soil in a pleasantly cool and moist condition very comforting during our long, hot summers. Stable manure also is humus, but because of the ammonia and other compounds that it contains, is much too rich and stimulating a fare for these children brought up by Nature's simple rule—a good, nourishing diet, but no frills. Manure, nevertheless, may be used in small quantities, but it must be *very old* and *well-rotted*—old hotbed stuff, or that which has lain for several years exposed to the weather.

Winter damp, in a climate such as ours, is the dread enemy of the inhabitants of the rock garden, and against

it they must be protected by every means that can be devised. It causes the death of more plants than does ever winter cold, however extreme, and many a plant now suffering under a reputation for tenderness would be found quite hardy if grown in a soil so sharply drained as absolutely to insure it against standing moisture in winter. Free drainage, it must again be urged, is the great and outstanding necessity of the rock garden. The soil should invariably be of a character to admit of the instant passage through it of all superfluous moisture, while at the same time a sufficient amount is engaged and held to satisfy the needs of the plants during the growing season. To this end are the sand and stone chips added. These endow the soil with a ready perviousness, while around each stone and particle of sand gathers a delicate film of moisture, available always to the eager, seeking roots, and maintaining below ground an agreeable coolness and salubriousness of temperature for which the plants are deeply grateful when the summer sun shines hot above them and the rains of heaven are withheld Let the sand used be sharp and clean, not fine and dusty; and the stone chips may be of the kind used to top-dress roads, or fine gravel, or any small stone or grit that is available. The crushed dull grayish stone so frequently employed to surface roads is often a form of limestone, and as a majority of plants, alpines in particular, enjoy a generous supply of lime in their diet, this is very good to use; and where more lime is required it may be added in the form of old mortar rubbish well broken up, or thoroughly slaked

lime incorporated with the soil several weeks before the ground is to be planted.

All these materials must be dug and stirred, mixed and compounded until they form an even blend, light and crumbling and spongy to the handling, and devoid of any tendency to lump or cohere. More sand will further lighten it; more humus or old, rotted manure further enrich it; more stone chips render it acceptable to the very high and austere; more lime, almost any quantity, in fact, will please the majority of alpines; peat or shredded sphagnum moss may be added where it is desired to retain a good deal of moisture, as in the case of some of the Primulas. And American rock gardeners must be continuously and everlastingly experimenting in this matter of soil-making for rock plants, for so young and untried are we as yet at this most supremely fascinating phase of gardening that we have almost noth ng—at least concerning rare plants—that is matter of fact to go upon in our treatment of them.

The experience of our English friends does not help us materially, for their climatic conditions are so utterly different from ours. But what will help us is the testimony of American gardeners, passed from one to another by word of mouth, or sent in to the various horticultural papers and magazines. Only thus can we hope to build up a reliable fund of knowledge concerning the necessities of rock plants and alpines in the various sections of our country, both as regards soil and aspect.

The prepared soil of the rock garden should lie no-

where less than a foot deep, and may with advantage be much deeper, for the roots of many of the plants that we shall want to grow penetrate to a depth of a yard or more in search of coolness and refection. And if, in the higher portions of the construction, it is necessary to use a foundation of common soil, it must most emphatically not be of a clayey nature; but loose and light, with an admixture of broken stones of various sizes to make the drainage the more certain, and to provide cool, moisture-holding stations for the searching roots.

To prevent the evaporation of moisture from the soil in summer, as well as to protect the plants from contact with the cold and clammy earth in winter, a dressing of fine stone may be spread over the surface of the garden. And where further precaution is necessary, as in the case of nearly all woolly-leaved alpines, which are excessively sensitive to damp at any season, a collar of flat stones may be drawn in closely about the neck of the plant, thus lifting it very effectively out of harm's way.

Directly the reverse of the lime-loving alpines in their requirements, and much more peremptory in their demands, are the plants to whom an acid condition of the soil is essential. This seems a strange and perverted taste for sweet and lovely flowers to exhibit, yet we are being taught that not only is an acid soil the preference of some of the sweetest and most lovely of them, but that lacking it many will not grow at all; whereas, when acidity is present in the required strength the considerations of moisture or aspect appear to be of

DICENTRA EXIMIA

A diminutive relative of the Bleeding-heart with pink flowers that will grow for any one

Two good dwarf trees, Picea excelsa Gregoriana and Taxus baccata erectus

Dianthus neglectus. Perhaps the most charming of the Pinks.

minor importance, often of complete indifference, to them.

Certain plants—and among them are some of our most beautiful and desirable wild flowers—have long been a source of distress and bafflement to gardeners on both sides of the water because of their seemingly inconsistent and irrational behaviour under cultivation. We see them variously characterized as incorrigibly wild, unconscionably "miffy" utterly perverse, and the like. And there has seemed to be reason for this outspoken irritation, for many of them have consistently refused to grow under cultivation, or at least to live their lives with any degree of cheerfulness and enthusiasm when brought within the pale of civilization, though attended by every care that could be devised by their anxious hosts, but—and here lay the quite exasperating mystery—thriving naturally with equal freedom in widely differing situations, often in surroundings that might well be supposed wholly uncongenial to them.

And it now appears that while we have prayed and fussed and fretted over these so-called incorrigibles, seeking to hold them with tender care and the choicest food, the most advantageous aspect, all the poor dears wanted—indeed, what they *had to have* in many cases in order to live—was an acid tang to their bread and cheese, and whether the table was set out under the sky or beneath the trees did not so much matter.

The Trailing Arbutus, most appealing emissary of the spring, I knew for many years as a woodland plant

only, haunting shadowy glades where the soil was damp and fibrous, often crouched close to a rotting log or stump and half hidden by last year's brown and crackling leaves. And when I went to Pinehurst, North Carolina, I was astonished to find my shy little friend spreading about boldly in the blazing sun in the sandy soil of the golf course, holding its own against the short grass and thriving as heartily as ever it did in the cool and sheltered hollows where I used to find it. At first I could not believe it to be the same plant, but when the delicate pink blossoms unfolded and I inhaled their scent, which is like no other, I knew it beyond any doubt for my little woodland friend, and marvelled. And the explanation of its seeming complete indifference to environment is simply that in both localities this small epicure found the food to its taste—the degree of soil acidity necessary to its health and happiness.

How often have most of us sought to induce the Trailing Arbutus to grace our gardens, and many another lovely wildling as well—the pink Moccasin Flower, the Bird's-foot Violet, Bluets, Iris verna, and a score of others, only to be rebuffed? Thousands of these plants are sacrificed yearly to our desire to possess their beauty and our ignorance of how to cherish it. But there is no longer reason or excuse for this cruel waste of life and loveliness; for possessed of the knowledge of their most urgent necessity, it is by no means a difficult matter to provide for it in the garden.

Scientists are still concerned with the problem of soil acidity relative to plant life and its distribution, but

what has already been revealed is of vast significance to gardeners—as well as to the heretofore sadly mistreated wild plants—enabling us to walk with a degree of certainty where before we went blindly, making it possible for us to provide the proper soil conditions for many native plants and shrubs of great value for garden adornment, whose treatment has hitherto been a matter of guesswork, too frequently attended by failure. A large number of these plants and shrubs are of just the type suitable for growing in the rock garden, and it will not be difficult in most neighbourhoods to obtain sufficient soil of the right character to supply the needs of a small collection, while in some localities any desired amount is easily available.

The soil beneath Hemlock, Pine, and other conifers is the most highly acid; next that taken from thickets of Huckleberry, Laurel, and the Heath family generally. This is termed upland peat. Bog peat is the decomposed vegetable matter found in swamps and very low ground. In collecting the acid soil it is well to take only five or six inches from the surface, as that lying below is likely to be of less value for our purpose.

To make a place for the acid-soil lovers, whether on a small or an extensive scale, the natural soil should be removed to a depth of at least eight inches and the excavation filled with earth dug from beneath conifers or heaths, with an admixture of non-alkaline sand, bits of bark and twigs, Pine or Hemlock "needles," and avoiding especially lime in any form, and manure.

Long Island has miles of such soil, where out in the

sun the Bird's-foot Violet springs with glad freedom and the Bearberry weaves a dense mantle; where in the Pine and Oak woods Pyrola and Chimaphila carpet the ground and the pink Moccasin Flower lifts its proud head.

Accessible to almost every neighbourhood is some such region where a quantity of acid soil may be obtained, but if not we may ourselves play the part of alchemist and convert the common soil to our uses by saturating it with a solution of tannic acid, a heaping tablespoonful to a gallon of water, applied several times at intervals of two or three weeks. An occasional surfacing of "needles" or rotted oak leaves will help, and in the autumn the bed may be given a blanket of oak leaves.

If the bed or border for the acid-soil lovers may be made beneath Pine or Hemlock trees so much the less will be our labour, but any partially shaded corner will do; the north or east side of building, hedge, or fence, a position under trees, or the north slopes of the rock garden. Many of the species grow naturally in shaded places; a few prefer sunshine, and a number will accept either condition if their craving for acidity be satisfied.

Adjoining my own rock garden on the west is a tiny, triangular piece of woodland. It is so small that one stretches a point in thus characterizing it, but it is a survival of what was once a fine tract of forest, and serves well as a home for wild plants of all kinds. In it are an old and somewhat decrepit Hemlock, a large Tulip tree, a young Hickory, a young Beech, several

Dogwoods and Birches, and I have added a few small evergreens, Shadblows, Spicebush, and other shrubs and trees of suitable character. Beneath the old Hemlock that stands at the northern end, and in the lowest portion, I am preparing a bed for acid-soil plants—those that require the highest degree of acidity; near by a large, rotting tree stump furnishes a congenial neighbourhood for low Huckleberries, Prince's Pine, Spotted Wintergreen, Spring Beauty, Partridge Berry, and others content with a lesser degree of acidity. The rest of the wood is given over to wild flowers of all sorts—a sanctuary chiefly for plants facing destruction through the relentless march of Suburbia over the grounds once held by wild creatures alone.

The ill-advised plundering of city folk, who know not the irreparable damage they do, is costing us heavily in wild flowers, but even greater and more final is the destruction caused by this reaching out of bricks and mortar and "good roads" into the wild. I have said a sorrowing farewell to many a fine old friend among the trees in my own neighbourhood, grieved over the disappearance of squirrels and other little furred brothers, and the wild birds; and watched with a rebellious heart houses and smug lawns and sleek roads materialize where once I knew tangles of Bellwort, Hepatica, Violets, Bloodroot—the dear "woodland commonplace"—not sparing even the preserves sacred to the Fringed Gentian or the Moccasin Flower.

This is, of course, inevitable; we cannot stay the expansion of cities and towns; it is beyond our power to

save the trees or to induce the little wild creatures in fur or feathers to dwell for long midst the alarms and excitement inseparable, apparently, from the lives of civilized humans, but we can at least snatch from beneath the wheels of this grinding, inexorable Juggernaut's chariot the tender wild flowers—oh! as many of the doomed millions as may be found room for—and give them sanctuary in our gardens, there to bud and bloom and rejoice the world under conditions as happy as they ever knew. In every garden there is room for a wild flower sanctuary; in every neighbourhood there is pressing reason for such provision, and all such green philanthropy will meet with a reward far outweighing the slight labour it involves. Save the Hepaticas, and Bloodroots, and gay, dancing Columbines; they are the earth's gallant laughter that rises out of storm and tumult, bidding us listen and laugh with them. How bereft, indeed, should we be without its glad assurance!

A large majority of these plants like a shaded situation but most of them will thrive in the common soil of the garden—whatever you have to offer them. A few crave the comfort of a boggy spot, and others the consideration of an acid soil. The following tables contain some of the more important native acid-soil plants from the standpoint of the rock gardener, but the stones are by no means a necessity, and a comfortable abiding place may be made for them in gardens of any type. Those marked with an asterisk (*) prefer damp conditions, but may usually be made happy with a

soil that is deep and rich in humus and of a moisture-retaining character.

For more detailed information concerning this class of plants I would refer the reader to Dr. Edgar T. Wherry's Bulletin, "Soil Acidity: Its Nature, Measurement and Relation to Plant Life." And to Mr. Durand's recently published "Taming the Wildings."

* * * *

Plants Growing Naturally in Highly Acid Soil

*Andromeda polifolia . . . . March Rosemary, Moorwort
Andromeda (Pieris) floribunda . . . . Mountain Fetter-bush
*Arethusa bulbosa . . . . . Arethusa
*Azalea viscosa . . . . . White Swamp Azalea
*Calopogon pulchellus . . . . . Grass Pink
*Cassiope hypnoides . . . . . Cassiope, Moss-bush
Chamaedaphne calyculata . . . . . Leather-leaf
Chiogones hispidula . . . . . Creeping Snowberry
Clethra alnifolia . . . . Sweet Pepper Bush, Honey-sweet
Clintonia borealis . . . . . Yellow Clintonia
Clintonia umbellulata . . . . . White Clintonia
*Coptis trifolia . . . . . Goldthread
Cornus canadensis . . . . . Bunchberry
Cypripedium acaule . . . . . Pink Moccasin Flower
Dalibarda repens . . . . . Dewdrop
Diapensia lapponica
Drosera filiformis . . . . . Sundew
Epigaea repens . . . . . Trailing Arbutus
Emptrum nigrum . . . . . Black Crowberry
Galax aphylla . . . . . Galax
Gaultheria procumbens . . Checkerberry, Creeping Wintergreen
Gaylussacia brachycera . . . . . Box Huckleberry
Habenaria blephariglottis . . . . . White-fringed Orchis
Habenaria ciliaris . . . . . Yellow-fringed Orchis
Iris verna
Kalmia angustifolia . . . . . Lamb-kill, Sheep Laurel
Kalmia glauca . . . . . Pale Laurel

Kalmia latifolia . . . . . Mountain Laurel, Calico-bush
Ledum groenlandicum . . . . . Labrador Tea
Leiophyllum buxifolium . . . . . Sand Myrtle
Linnaea borealis . . . . . Twin-flower
Oxalis acetosella . . . . . White Wood Sorrel, Alleluia
*Pogonia ophioglossoides . . . . . Rose Pogonia
Pyrola chlorantha . . . . . Green-flowered Wintergreen
Pyrola uliginosa . . . . . Bog Wintergreen
Pyxidanthera barbulata . . . . . Pyxie
Rhodora canadensis . . . . . Rhodora
*Sarracenia purpurea . . . . . Pitcherplant
Trillium undulatum . . . . . Painted Wake-robin
Vaccinium pennsylvanicum
Vaccinium Vitis-Idaea

FERNS

Asplenium montanum
Asplenium pinnatifidum
Dryopteris simulata
Lygodium palmatum.
Osmunda cinnamomea
Osmunda regalis
Polypodium polypodioides
Woodwardia areolata

Plants Growing Naturally in Soil of Medium or Slight Acidity

Anemone Hepatica (Hepatica triloba) . . . . . Liverwort
Arisaema triphyllum . . . . . Jack-in-the-pulpit
Asarum canadense . . . . . Wild Ginger
Aster linariifolius . . . . . Upland Aster
Azalea arborescens . . . . . Tall Azalea
Azalea calendulacea . . . . . Flame Azalea
Azalea rosea (canescens) . . . . . Rose Azalea
Azalea nudiflora . . . . . Pinxter Flower
Calypso bulbosa
Chimaphila maculata . . . . . Spotted Wintergreen
Chimaphila umbellata . . . . . Prince's Pine
Claytonia virginica . . . . . Spring Beauty
Cypripedium candidum . . . . . White Lady's-slipper

Cypripedium parviflorum . . . . Small Yellow Lady's-slipper
Cypripedium pubescens . . . . . Yellow Moccasin Flower
Cypripedium spectabilis . . . . . Showy Lady's-slipper
Dentaria diphylla . . . . . Toothwort
Dicentra cucullaria . . . . . Dutchman's-breeches
Erythronium americanum . . . . . Adder's Tongue
Goodyera pubescens . . . . . Rattle-snake Orchid
Habenaria (various) . . . . . Orchis
Houstonia coerulea . . . . . Bluets, Quaker Ladies
Hypoxis hirsuta . . . . . Star Grass
*Iris prismatica . . . . . Slender Blue Flag
Leucothoe Catesbaei . . . . . Wand Shrub
Lilium philadelphicum . . . . . Wood Lily
*Lilium canadense . . . . . Meadow Lily
*Lilium superbum . . . . . Turk's-cap Lily
Liparis lilifolia . . . . . Little Brown Orchid
Listera convallarioides . . . . . Lipped Twayblade
Maianthemum canadense . . . . . Canada Mayflower
Mitchella repens . . . . . Partridgeberry
Mitella diphylla . . . . . Bishop's-cap, Mitrewort
Moneses uniflora . . . . . One-flowered Pyrola
Orchis spectabilis . . . . . Purple-hooded Orchis
*Parnassia caroliniana . . . . . Grass of Parnassus
Polygala paucifolia . . . . . Gay Wings
Pyrola elliptica . . . . . Shinleaf
Pyrola rotundifolia
Rhexia virginica . . . . . Meadow Beauty
Rhododendron (various)
Shortia galacifolia . . . . . Oconee Bells
Silene pennsylvanica . . . . . Wild Pink
Spiranthes cernua . . . . . Lady's Tresses
Trientalis americana . . . . . Star Flower
Trillium grandiflorum . . . . . Wake-robin
*Trollilus laxus . . . . . American Globeflower

FERNS

Adiantum pedatum. . . . . Maidenhair Fern
Aspidium (various)
Asplenium platyneuron

Asplenium Felix-foemina . . . . . Lady Fern
Asplenium Trichomanes . . . . . Maidenhair Spleenwort
Camptsorus rhizophyllus . . . . . Walking Fern
Cystopteris bulbifera . . . . . Bladder Fern
Onoclea sensibilis . . . . . Sensitive Fern
Osmunda Claytoniana
Woodsia ilvensis . . . . . Rusty Woodsia
Woodsia obtusa

CHAPTER XIV

The Plants and Their Necessities

JUST what it is proper to grow in a rock garden is a debatable question, not all authorities agreeing by any means, and some gardeners, curiously enough, going to an enormous amount of labour and expense to pile up huge erections of earth and stone for the sole purpose, seemingly, of housing tender bedding plants and such herbaceous stuff and shrubs as would be far more comfortable on the level and under ordinary garden conditions. But to grow Nasturtiums, Portulaca, and Spiraea Van Houttei on a mimic mountainside is not the aim, I take it, of the majority of persons who build rock gardens. Yet to define that aim in terms of plants is not easy.

We speak vaguely of alpines and rock plants: an alpine plant, roughly defined, is one that grows on that portion of the mountain lying above the line of timber trees. Below the alpine region extends the sub-alpine —approximately between three thousand and five thousand feet above sea level, and below this again lie the lowlands and the plains. True alpine and many sub-alpine plants are very dwarf in stature, often not exceeding two inches, neatly compact in growth, and many bear flowers of the utmost sparkling brilliance with amazing freedom; but not a few are so dowdy and

dull that there is no manner of reason to invite them to exchange their peaks for ours, while down in the lowlands nestles many a dwarf plant so lovely and so choice as to lay a claim upon our utmost care and solicitude.

Some gardens are wholly devoted to the culture of true alpines, but in the majority the selection is far more catholic, embracing everything, in the words of Mr. Farrar, that looks well and suitable, no matter where it comes from. This, then, may be taken as a free definition of what a rock plant is—anything that looks well and suitable on a rock garden.

But this free interpretation must needs be flanked by vigorous prohibitions if in the rock garden we are to realize a specific and beautiful ideal, and be saved from the deadly banality of Nasturtiums and Portulaca. Then grow no annuals of any sort therein, save some of the most minute and precious whose names are given elsewhere; no tender bedding plants, no large or garden-wise herbaceous stuff, no tall-growing shrubs. Let the rock garden be reserved to provide a comfortable home and a felicitous setting for hardy plants of dwarf stature that require special conditions of soil, drainage, and exposure, and for those too small and fragile to hold their own or to display their charms in the hurly-burly of the ordinary flower garden, yet possessing beauty in a sufficient degree to make them worthy of a special setting.

Upon the size and scale of the rock garden will somewhat depend the height of the plants that may suitably

be grown therein; but for the usual garden on the suburban place, it is safe to confine the choice to plants not greatly exceeding a foot in height, and shrubs that do not finally grow taller than two feet. This rule may be occasionally broken where in some situation height would bring about a desired effect, or in the interest of some especially good and compact-growing plant, but in the main it should be adhered to faithfully, the large majority of plants grown being cut on the pattern of the true alpine—low, compact, brilliantly blossomed, though it come from lowliest bog or meadow, or from the woods but a few yards distant from our garden gate.

And of course it is our desire to grow all these plants superlatively well; that is to say, to see them bearing their blossoms as if they were a joy and spreading their mats of verdure over the ground in vigorous and radiant health; not lingering on sadly, the breath barely kept in their little transplanted bodies through a period of homesickness ending inevitably in death. To avoid this latter dire disaster is not at all difficult in the case of the majority of the plants we seek to please; only a few turn from us when we have done our best in their behalf.

In our whole treatment of a plant it is of paramount importance to bear in mind whence it comes; whether from mountain, and what region of the mountain; whether from meadow, wood, or bog; and to strive to reproduce as faithfully as may be the conditions to which it is there accustomed.

We cannot influence climate in its favour, but we can

go far in making the soil, moisture supply, and exposure conform to its requirements, and it is surprising how far the little plants themselves will go toward meeting us halfway in our efforts to please and make them safe. Few demand the whole loaf, and the greater number accept the half, and often less, with the utmost alacrity and cheerfulness. In the notes at the end of the book I have endeavoured to indicate wherever possible the native environment of the plants, as well as what I have found them willing to accept in lieu of it.

In my locality—the near neighbourhood of New York City—I believe April and August to be the best months for setting out alpines and rock plants. I might say from April first to May fifteenth, and from August fifteenth to September fifteenth, no later if it may be avoided. The plant requires time to become established before the strain of winter comes upon it, and unless the roots have firmly grasped the soil the first great heaving of the frost in the earth will thrust it forth; nor in an unsettled condition will it be able to withstand the bitter cold, the drying winds, the excessive moisture to which it will almost invariably be subjected before the snow falls and makes it safe, at least for the time being.

Summer planting is hazardous because of the extreme heat and drought that will almost certainly occur and which the plant is not able to bear unless its roots have run deeply into the cool soil and its leaves spread out protectingly over the earth to keep it fresh and moist. In an emergency, of course, planting must be done

whatever the season or condition of the soil, and may be attended by success, but every precaution must in that case be taken to minimize the perils.

The actual setting of the plant should be carried out with great gentleness and consideration; a hole prepared sufficiently deep to admit the roots without bending or crumpling, and the soil filled in gently but firmly all the way so that the roots may at once feel the impulse to grasp and delve, and winds may not wrench and loosen their hold. If it comes out of a pot the ball of earth should be gently squeezed until well broken up, and the roots at the bottom freed of soil and allowed to straighten out. Before the hole is quite filled in a good soaking should be administered, and dry earth and stone chips then be spread over the surface. Flat stones may be drawn about the neck of the plant to keep the leaves from resting on the damp ground, and other stones may be buried in the ground near by for the roots to creep under and about in search of the coolness and moisture that is life to them.

Woolly-leaved plants, it must be remembered, are most impatient of damp at any season, whether actual wetness of the soil or that dank atmospheric humidity which is so characteristic of our Eastern climate at certain seasons. These should invariably be given the sunniest situations, a thoroughly drained soil and the protecting collar of flat stones. Almost any gray-leaved plant may come under suspicion, though some are much less sensitive than others. In British rock gardens many of these plants are given a roof of glass

during the winter to safeguard them completely from damp and moisture, but here, where our winters are more consistently cold and fairly dry, it is necessary only in the case of very high and "miffy" alpines, most of which are at the present time beyond our reach.

The effect of the rock garden as a whole will be far more pleasing if the plants be set out in colonies of one variety rather than as single specimens, and arranged with some feeling for a pleasant colour harmony and their general fitness to be neighbours. There is no reason why a rock garden should not be quite ravishingly beautiful as well as satisfactory from a material standpoint, but in our anxiety to give to each plant the best possible physical surroundings, we are apt to lose sight of other considerations.

For three months—April, May, and June—the rock garden should present a spectacle of the utmost sparkling brilliance. Nor is this at all a difficult matter, the first display being made with the many small bulbs and such early-blooming plants as Eranthis, Adonis, Arabis, Anemones, Violas of all sorts, Primroses (scaulis and denticulata), Hepaticas, Pulmonarias, Bloodroot, Draba repens, and others; the second with the early Irises, Aubrietias, Phloxes, Mertensias, Forget-me-nots, Androsace, Aethionemas, Alyssums, Corydalis, Geums, Silenes, Iceland and Alpine Poppies, Arenarias, Foam Flowers, the late wild Tulips, Columbines, Polemonium, Primulas frondosa and others; Erysimums, Cheiranthus and innumerable others; the third month with the many Campanulas, Geraniums, Erodiums,

ARABIS ALBIDA AT THE LEFT

In the foreground a small plant of Genista prostrata that has set out to clothe the adjacent flat stone

Veronica rupestris. A splendid blue-flowered plant

Iris gracilipes and Androsace sarmentosa Chumbyi

Sedums, Coronilla, Oenotheras, several Lychnis, Potentillas, the Asiatic Primroses, Pinks, Gypsophilas, Papaver rupifragum and many more.

One point to remember is that these plants like to grow close together—they do not like a magnificent isolation, to stand aloof from their kind. They love to be *set close* so that their roots may intermingle, their blossoms lean together in friendly fashion. To struggle a bit for their place in the sun is what they are accustomed to, and thus to do in the garden perhaps keeps them from dwelling upon the homes they have left, and prevents them from having too much time to think upon pining and dying. My own rock garden in its second spring has arrayed itself in such a garment of fresh and sparkling loveliness that each morning as I come out to view it I fairly catch my breath at such exuberance, such carefree, happy blossoming. At a little distance the earth does not appear at all; the gentle slope lies under a wondrous garment of mauve and pale yellow, white and rose and violet, with here and there a splash of scarlet or apricot where Poppies break through, or the handsome late Tulipa Sprengeri; and everywhere the warm-coloured shoulders of the stones to harmonize or separate jarring notes.

I do not mean, of course, that the plants are to be set close together without regard for their fitness to be neighbours—the strong in that case would soon drive out the weak—but that rampant kinds should be kept together where they can do no harm, leaving the small things in happy possession of a region of their own.

It takes time, of course, to learn the characteristics and habits—bad and good—of all the inhabitants of our little kingdom; to know that some are tight and tufted and most conservative in their increase, while others ramp and brawl over the surface of the earth in careless disregard of the rights and territories of others. Indeed, in the rock garden must be exercised an eternal vigilance in order that the great may not overcome the small; that some hearty, kindly roisterer in an excess of life and spirits may not crush out of life precious small things that cannot lift a leaf in their own defense. A plant that spreads rapidly from the root is always troublesome, and all trailers will bear watching, though many are entirely harmless and would not hurt the least and most fragile of alpine mites. It is not long before we learn that such plants as Arabis, trailing Soapwort, Nepeta, Phlox subulata, Gypsophila repens, and many Sedums, give us broad masses of splendid colour and lovely verdure, but are dangerous neighbours for Androsace, Saxifrage, small Thrifts, and Campanulas—for anything, indeed, save plants as strong and lusty as themselves. These splendid creatures should be given a region to themselves where they may work off their high spirits to the delight of all beholders and the hurt of none, while other regions, more choice of aspect and select of soil, be kept free of their encroachments in order that smaller, more fragile beings may live their lives as rejoicingly, free from the fear of surprise and attack.

Work in the rock garden begins early—as soon, in-

deed, as the last snow has been swallowed by the thirsty earth and we may creep about over the stepping stones, turning back here and there the leaves or boughs that have been used as a winter blanket, to see how our dears have fared since last we saw them. Frost, it will be found in all likelihood, has hoisted some of them well out of the ground, exposing their thong-like roots, and making them flop in a dejected manner. These must be pressed firmly and gently back into security and comfort, and their dignity of carriage restored. Again we shall find the roots of many washed clear of soil by the rain, and the slopes ploughed into small furrows and cañons by the same destructive, as well as constructive, force, and perhaps some of the larger stones loosened and unsettled in their beds.

All this must be put to rights; the stones firmly wedged in, the furrows filled with earth and small stones, and the plants top-dressed with a comforting mixture of sand and loam. I keep a large box of this reviving pick-me-up always at hand, for it is often necessary to repair the ravages of storms at other seasons than in the spring, and it is well to have it ready. Its rule is one part each of sand, loam, and leaf-soil, well mixed and put through a sieve to make it fine and friable. This I carry about in a Nantucket basket, which is stout and close-woven, light, and has a strong handle. Wherever bare roots are discovered this pleasant mixture is worked gently in among the growths, until the small tufts and shoots are covered up to their necks, and should feel encouraged to start into immediate and

enthusiastic growth. Many small plants are the better for such a top-dressing just after they have flowered, seeming to need a tonic before they can start preparations for next year's show: Campanulas, especially those like pusilla that run about rather wildly under the influence of the springtime urge, and blossom so freely and excitedly that they are rather weak and let-down when it is over, and many Saxifrages, small Thrifts, Androsaces, Silenes, Asperulas, and the like. Indeed, my basket of nourishing soil is seldom long on the shelf, for even in autumn one finds it wise to top-dress weak shoots and to make certain that all newly made tufts and rosettes are surrounded up to the collar with soil that encourages them to root readily and strongly when the time comes, and to spread out into beautiful, pride-feeding mats of downy tufts or silvered rosettes adorned with sparkling gracious flowers.

On no account must the winter covering be removed too early, nor all at one time. More dangerous far to the plants than even the lurking, spiteful frosts are the searing, drying winds that so often beat about the feet of advancing spring, and burn and scourge the plants, tender and sensitive after long confinement; nor must it be left on too long lest they die for want of light and air when they have begun to grow. About the end of March here, we begin removing the blanket, a little at a time, letting in the sunshine and breezes by degrees, allowing the plants time to stretch and steady themselves, as it were, and presently they are ready for whatever may come.

Often the spring season is very dry, and avid, searching winds suck the moisture from the soil, leaving the plants sadly in want, their roots parched, their blossoms fainting. Then must we give them water with a liberal hand, not in desultory surface wettings that tend merely to draw the thirsty roots upward into the danger zone of the sun and the wind, but freely, soaking the soil to a good depth, and with a very fine spray so that the fragile blossoms will not be beaten into the earth or spattered with mud. I always water the rock garden myself, sitting on a low stool which I can move easily from point to point, using a light hose and deriving great pleasure from watching the fine spray soak into the soil and the blossoms lift their heads in relief and gratitude. This of course is not the most scientific way of watering the garden, but it is one of the tasks that I have not yet felt willing to relinquish to a mechanical contrivance.

All summer long the plants will need to be watered in dry weather, but the spring attention is more important than any, for plants that have not made a strong luxuriant growth in spring will be in no shape to withstand the trials that summer certainly has in store for them.

Seeding, it may be said, generally weakens the plants and is best not allowed, save where we wish to save the seed of some special variety or to encourage it to self-sow, which many of them do so charmingly, springing up out of crannies and corners in a manner that we should have to employ all our taste and ingenuity to

improve upon. Many, on the other hand, when given this freedom are veritable pests, and from all such the fading flowers should be removed in the interests of order, and as a labour-saving expedient, for weeding out these undesirable seedlings is as much of a task as any sort of weeding, and we should save ourselves unnecessary labour that there may be the more time to spend in free enjoyment of our small treasures.

Many of the plants are benefited by a good shearing immediately after they have flowered. Among these are Arabis, Alyssum, Aubrietia, Aethionema, Cerastium, dwarf Lavender, Phlox subulata, Arenaria montana, Gypsophila, Nepeta, Thyme, Potentilla and the Pinks, all in fact that grow in mats of dense foliage. I use a pair of long shears and simply give them a good clipping all over, thus removing the spent flower-stalks and cutting back the foliage decidedly. New growth starts immediately and by autumn there are compact mounds of sturdy young shoots ready to face the rigours of winter composedly, instead of a mass of straggling, weakened growths that could not withstand its severity. This also makes for tidiness and grace in the rock garden, for some of the plants, left to themselves, grow very lax and unseemly in their behaviour, while when newly clipped they soon renew in the garden the cleared, uncluttered aspect that it wears in spring.

In summer the soil of the rock garden will require to be kept gently stirred with some small hand tool—never a hoe—that may be wielded without injury to

the tiny crowding rosettes and trails of delicate foliage, in order to conserve as much moisture as possible.

And weeding must be pursued with the utmost thoroughness and acuteness, for nowhere can weeds do so much dire harm as in the rock garden. Once entrenched among the stones and boulders their position is practically unassailable, and they may sally forth to annoy and maltreat our precious charges at their pleasure. Certain weeds, those with fine creeping rootlets, give the most trouble. These insinuate their thread-like tentacles among the roots of the legitimate inhabitants and nothing short of taking up the whole plant—no small task, this, when it has become anchored among the stones—and tearing out the offensive intruder bit by bit, inexorably searching out each scrap and thread of root in the tangled mat of the other plant, will enable us to be rid of it. And the victim is then usually injured beyond recovery.

The weed from which I suffer most is White Clover, whose prowling rootlets are indefatigable in getting into mischief. Its favourite haunts are the broad gray mats of some of the Androsaces, and the flat, close mass of the white-flowered Thyme, and I do not like to think of the cruel mutilation that has been necessary to free these loved plants from their small but vicious visitor. There is a small Oxalis with innocent-appearing yellow blooms that makes of itself a dangerous pest among the rock plants, as do Chickweed, Pursley, Butter-and-eggs, and grass of all kinds, and extraordinary vigilance should be maintained against these and any

others that may infest your neighbourhood, or have gained entrance as stowaways among proper plants. To let them get a start is to lay up endless trouble and toil, and to suffer continual bereavement and irritation, whereas, in the beginning, they are easily rooted out.

And this weeding, of course, we must do ourselves; no alien hand—never that of the by-the-day man—should touch the rock garden. Who but ourselves can tell what to take out and what to leave in; which colony of crowding Forget-me-nots shall stay, and which must be sacrificed because it is menacing the lives of choicer and more fragile plants? Many a delight is lost through ignorant weeding, and many a pest left in. And oh, the cruel damage done by incautious, uninitiated feet! Even visitors frequently sin in this matter, stepping flatly upon the shrinking plants, quite heedless of the stones placed for their convenience.

No, the rock garden must be a personal matter. If we are not willing to give it the best of our protection and service, to realize that each little plant is an individual with special needs and desires, as well as very special loveliness to give in return, it is the part of wisdom and fairness to keep to herbaceous borders where pot-luck served by any conscientious person will keep the plants wholesome and smiling. The rock garden is for the lover of small choice things who gives himself freely in their behalf, and to him alone will it display its exquisite, fragile graces, its fresh and sparkling beauty, its amazing vigour and hardiness, its endless chain of variety, excitement, and adventure.

To increase the stock of plants by other means than by seed, several methods may be followed. Many of the plants of the rock garden may be divided as easily as may the plants of the ordinary garden. Among these are numerous Pinks, Campanulas, Saxifrages, Androsaces, Irises, Sedums, Sempervivums, Primulas, Silenes, Phloxes, Geums, and Violets. Rosettes or tufts or rooted shoots may simply be pulled from the parent mat in early spring, or soon after the flowering is past, and set firmly and deeply in sandy loam kept fairly moist, either in pots or boxes, the cold frame, or even in the rock garden itself, if the plants may there be protected from an undue amount of sunshine. Mr. Meridith advises a pinch of sharp silver sand about the roots to encourage new growth and to lessen the chances of damping off.

Frequent division and replanting is a benefit, even a necessity, to many of the plants, as all these densely growing things, whether mound-making or mat-making, tend to push up in the centre, lifting portions of the plant from contact with the earth and causing it to die out in unsightly patches. When this sad state threatens—or before it threatens preferably—the plant should be taken up, carefully pulled to pieces, and replanted.

Trailing plants like Phlox subulata, Arenaria montana, and others, may be easily increased by layering. This is done by choosing a healthy shoot near the ground, cutting it part way through near a joint, and securely pinning it to the ground with a wire hairpin and covering it with sandy soil, kept moist. It is

important that the branch be kept firmly in place; to this end I sometimes place over it a light, flat stone.

Many gardeners increase their plants by taking slips or cuttings, but this, with no special facilities, is a difficult and chancy method, and I am so poor a hand at it myself that I can offer no reliable advice to others as to how it is done.

In the matter of winter protection few gardeners follow the same procedure, and of course locality has a good deal to do with what is necessary or advisable. It may, however, be borne in mind by all that rock plants in the main are perfectly hardy; it is not cold they fear, but the alternate freezing and thawing to which our climate subjects them, that strains and tears them, often throwing them quite out of the ground; and also the too early caresses of the sun which waken them to life and energy before it is safe to be putting forth the little tender shoots.

During winters when the snow lies long and deep upon the ground from Christmas until late in March, we need not give a thought to our sleeping alpines, lying so warmly beneath the white coverlet, but ordinarily there is not this safe provision, and they are subjected to great cold without any covering at all, followed by melting warmth, sunshine, and corroding mists, and bitter cold again. All this disturbs their rest—injures the roots, rots the crowns—and when spring comes and it is time to arise to life and work they are in a badly weakened state.

Various materials may be used to protect the plants

against these climatic extremes. I like evergreen boughs myself. These do not mat down so closely, and they permit a free circulation of air at all times, so that there is no danger of the plants being smothered, but these are not always available, and in lieu of them I use oak leaves held in place by light brush. These do very well as they do not rot and form a soft, close covering as do the softer leaves of Maples and Elms, and in the spring I lift the brush and let the wind take a hand in uncovering the plants by degrees.

Manure should not be used as a winter protection in the rock garden unless it is very old and strawy bedding stuff, but I am told that salt hay is excellent, though I have had no experience with it myself. The winter covering is not laid on until the ground is well frozen, but before that many little attentions may be given the plants to make them safe and comfortable; fresh soil wadded about the rosettes and tufts that have pushed a little out of the earth and sprinkled over the close mats of Thyme and Nierembergia and Hypericum to wash down through the thick growths for use the first thing in spring; collars of stone for the sensitive, a pane of glass for the super-sensitive, and a fresh surfacing of stone chips wherever damp is feared; all dead blossoms and seed pods and weak shoots removed so that the spring may start in tidily; a last hawk-like scrutiny for weeds.

When all has been made snug and one has gathered the last pert Johnny or flashing Poppy to thrust a rebellious head above the blanket, one has a lonely

feeling, for the care and conduct of this small kingdom and its vivid, friendly, exacting little people has been since they awoke in spring a never-failing source of pleasure and diversion, and one will miss them. Happily they awake early and not many months will pass before Crocus bubbles and tiny Daffodils will be thrusting through the brown leaves with a gay good-morrow.

CHAPTER XV

Shrubs for the Rock Garden

NOTHING so readily contributes to the illusion of "real scenery" in the rock garden as does the artful placing among its stones and boulders of little shrubs, especially the dwarf conifers. The marvellous ingenuity of the Japanese in creating realistic landscapes within the limits of a bowl or tray we perhaps cannot match, but with the aid of our little green "properties," the natural dwarfs of the tree and shrub world, we can do a good deal toward the truthful reproduction of a rugged natural scene on an extremely small scale. Mr. Farrar has said that the supreme test of the rock gardener's craft lies in the placing of his shrubs; and he elsewhere enjoins us that "shrubs, together with rock, make the backbone, the salient note of the rock garden, and that the placing of our shrubs is no less vital than the placing of our rocks."

When the stones of the garden are in place it is wise to survey the scene with attentive eyes, taking careful note of the points where shrubs or evergreen could be used with the greatest effectiveness, and trying to visualize the particular type of tree best suited to each location. A tiny pointed Fir set at the foot of a sheer cliff causes the cliff to look higher and more precipitous; a low stunted Pine alone in the midst of

a little plain gives the impression of loneliness and isolation to quite an astonishing degree. Thickets of Azalea or Huckleberry crowning the heights or crouched in the mimic gorges bring a rugged wildness to the scene, and the pool, if it is to play with truth the part of picturesque mountain lake, must lose its banks in matted undergrowth and marshal along its shores groups of black and brooding Pines and stalwart elfin Spruces. Slender types may be used to mask a slope; procumbent kinds to overhang a cliff; feathery Arbor-vitae and forms of Chamaecyparis thrive in the sheltered valleys. But it must be continually borne in mind that just as these will quite magically build up the illusion of a varied natural scene when intelligently used, they will as certainly destroy it, reducing the whole to a trivial and meaningless absurdity if a heterogeneous collection be simply scattered about without reason or intention. The choice and disposition of each shrub should be governed by the desire to bring about a definite effect and not merely by the urge to add a new variety to the assemblage.

Were we, when planting, able to keep clearly in mind the dignity and simplicity of real mountain landscape we should not be likely to go far wrong; but good sense and good taste are alike easily stampeded by the indubitable fascinations of the pygmy trees, notably of the conifers, even when seen growing in stiff rows in a nursery. Indeed, without some such restraining influence as a very slim pocketbook, it is almost impossible to hold our enthusiasms in check, even though

we know their free indulgence means the end of all beauty and reality in our building.

There is no doubt that evergreens are foremost in importance for use in the rock garden, as perhaps they are in any form of gardening. The leaf-losing shrubs have their short day of prominence and lapse into comparative obscurity while the evergreens make themselves felt at all seasons, giving form and depth to the spring and summer loveliness, and filling the void of winter with freshness and cheer. In a small rock garden it might be wise to rely wholly upon evergreens, but where there is room the best of the deciduous kinds should without doubt be included. It is well to avoid all curious or grotesque trees and shrubs and the variegated-leaved and weeping forms, save in a few instances and special situations, as out of harmony with a natural scene. The inclusion of these abnormal forms quite spoils the beauty of many a rock garden as well as destroying all sense of its reality.

It is probably not necessary to sound a warning against planting in the rock garden merely *young specimens* of normally tall-growing species. These would soon outgrow their surroundings and their removal would necessitate taking down a large portion of the rock-work. Naturally dwarf forms only should be chosen, and the smaller the rock garden the more diminutive must be the little tree selected to grow therein. An infant Norway Spruce differs little to the lay eye from one of its pygmy forms when full grown, but Picea excelsa will one day become a giant

of its race, while Picea excelsa pygmaea, for example, will remain always dwarf and compact, a harmonious unit in the most inconsiderable mountain landscape.

The following is a selection of trees and shrubs suitable for use in the rock garden, on small places, in city yards, or wherever naturally low-growing forms are desirable. Varieties marked with an asterisk (*) are sufficiently diminutive for use in small rock gardens—and no rock garden is so small but there is room in it for a few of these delightful little trees.

* * * *

Evergreens for the Rock Garden

ABIES BALSAMEA HUDSONICA (DWARF BALSAM FIR):—A low compact form of this beautiful well-known tree, growing as broad as tall. It is a desirable plant for cold districts and prefers a well-drained rather damp soil. The foliage is dark with silvery underlining.

ABIES CONCOLOR GLOBOSA:—A dwarf form of the beautiful White Fir, almost spherical in shape, with short, symmetrical branches. Large rock gardens.

ANDROMEDA POLIFOLIA *syn.* A. ROSMARINIFOLIA (MARSH ROSEMARY, MARSH HOLY ROSE):—Small bog shrub with slender, branched stems and narrow leaves, whitish beneath. Small globe-shaped white flowers, tipped red, nodding on frail stems and lasting long in perfection. Native of cold swamps in various parts of America, Asia, and Europe. Requires deep, peaty soil.

*ARCTOSTAPHYLOS UVA-USI (KINNIKINNIC, BEARBERRY, MOUNTAIN BOX):—A low, creeping, broad-leaved evergreen with small shining leaves, found in pine barrens and similar localities in U. S. A. Spreads into patches several feet in diameter from a single main stem, and unfolds among its dark shining leaves in May and June small pink flowers, faintly fragrant. Invaluable for covering rocky slopes and sandy places in sun. There are a number of Western Bearberries that would probably be of value could we get at them.

AZALEA AMOENA *syn.* RHODODENDRON AMOENUM:—A delightful

hardy shrub growing slowly to a height of four feet, with small, dark, rather hairy leaves that turn a fine red in autumn and bronze in winter. Flowers gorgeously magenta. Makes a bouquet of itself in late April. Give a carpet of Forget-me-nots and a half-shaded position.

AZALEA HINODEGIRII (RHODODENDRON HINODEGIRII):—Like the preceding in habit and growth, but the blossoms are a relentless cerise in colour that must be well considered in their relationship to other flowers of the same season. Leaves colour finely in the autumn. Lavender or white flowers are good neighbours for it.

AZALEA ROSAEFLORA (R. ROSAEFLORUM):—A low-growing shrub of compact habit, with salmon-rose blossoms fluttering over it in spring. There are numerous other evergreen Azaleas offered, but nearly all grow, albeit slowly, to a size greater than can be accommodated in most rock gardens. But all are lovely and desirable where there is room.

*BERBERIS BUXIFOLIA (B. DULCIS):—A box-like shrub that requires protection in the north. It grows from one to three feet and flowers freely in the spring, producing small orange-yellow blossoms followed by dark fruit.

BERBERIS STENOPHYLLA (GARDEN ORIGIN):—A graceful and beautiful shrub with arching branches clothed in small dark leaves. Reaches a height of three feet. Requires protection and a sheltered position in the neighbourhood of New York and northward.

BERBERIS VERRUCULOSA:—A low, spreading shrub clothed in dark lustrous foliage. Branches with delicate spines. Protect north of New York. The evergreen Barberries are handsome grown among large boulders over which their branches may spread.

*CALLUNA VULGARIS (ERICA VULGARIS), LING:—Low, easily grown little shrub, indifferent to soil so it be light in texture. Sun or half shade. There are numerous varieties.

*CHAMAECYPARIS LAWSONIANA NANA (CUPRESSUS), LAWSON'S TINY CYPRESS:—A most lovely little tree of somewhat globose form with dusky shadows among the planes of its bright green foliage. Hardy in the neighbourhood of New York if given a sheltered position. Prefers a fairly moist but well-drained sandy loam.

*CHAMAECYPARIS OBTUSA ERICOIDES (RETINISPORA OBTUSA SANDERI):—A small Japanese of exceptional charm. A low rounded bush, soft blue-gray in summer and deepening almost to purple in winter.

*Chamaecyparis obtusa gracilis compacta (Retinispora obtusa gracilis compacta):—Dwarf and compact; a very good little tree for the rock garden, with small dark leaves closely addressed, forming a frond-like arrangement. Very slightly pendulous.

Chamaecyparis obtusa lycopodioides (Retinispora):—Very distinct low-spreading form with thick branches and dark foliage. Rare and interesting.

*Chamaecyparis obtusa nana (Retinispora):—This tiny Hinoki Cypress is a most engaging pygmy with short deep green branchlets. Seldom reaches a height of three feet. Grows very slowly.

*Chamaecyparis obtusa nana aurea (Retinispora):—One of the few "golden" trees to be admitted to the rock garden. Very dwarf and slow growing, with rich bronze-gold foliage.

Chamaecyparis obtusa pygmaea (Retinispora):—Another minute treasure with spreading horizontal branches almost creeping upon the ground.

Chamaecyparis pisifera filifera aurea (Retinispora or Cupressus filifera aurea):—A quaint, wistful little Cypress, with pendulous and thread-like branchlets tossed about in wild disorder. Rather too fantastic in appearance, but to be tolerated when weeping over a large stone. Grows slowly but finally becomes quite large.

Chamaecyparis pisifera squarrosa (Cupressus squarrosa):—Grows too large for any but an extensive rock garden, but is one of the most beautiful of evergreens—sea-green in colour and of delicate feathery texture. Assumes lovely violet tones in winter.

*Chamaedaphne calyculata (Cassandra calyculata):—Leatherleaf, Cassandra, False-tooth bush. With the Shadbush and Red Maple this little native shrub develops its wands of tiny white blossoms. It will grow in ordinary garden soil or in the rock garden bog. Eighteen inches.

Cotoneaster:—Evergreen species very effective when grown close against large stones are: *prostrata* (*rotundifolia*), **Dameri* (*humifusa*), *pyrenaica, and* **glacialis*.

*Daphne Cneorum, Garland Flower:—A most lovely plant for partially shaded banks, with narrow evergreen leaves and trailing branches ending in round clusters of deep pink, deliciously fragrant blossoms. Flowers in May and again in late summer.

Not a very easy plant to keep, but does best in a soil largely composed of sand and peat. Twelve to eighteen inches high and growing several feet across.

*Empetrum nigrum, Crowberry, Heathberry:—Low, creeping, heath-like little shrub reaching a height of only a few inches. Purplish flowers of small account but dark fruit more conspicuous. Likes a sandy, peaty soil. Found on mountain tops of New York and New England, etc.

*Erica carnea:—The best and hardiest of the Heathers, growing six inches tall and flowering very early in the year. There are several forms but the bright pink one is the best and most striking. Makes a nice picture with *Daphne Mezereum.* Prefers sandy, peaty soil and hates lime. Give a mulch of leaves in winter.

*Evonymus Radicans Kewensis (E. Minima):—A climber that grows not more than eight or ten inches, but clings to stone, making a very pretty covering. Leaves minute with white veins.

*Gaylussacia brachycera (Vaccinium buxifolium), Box Huckleberry:—A rare little Huckleberry found growing in dry woodlands and pine barrens of Pennsylvania, Delaware, and New Jersey. It grows only a few inches tall and has tiny shining leaves and little clusters of pink-and-white bells in May. Sun or shade. A gem.

*Hedera helix minima:—Dwarf, slow-growing Ivy. Quaint stiff little plant that looks well on the cool side of a rock. There are other small Ivies suitable for the rock garden.

Juniperis communis canadensis (J. c. nana canadensis):—A broad-spreading plant rarely exceeding four feet in height. Branches erect from a procumbent base. Good for covering rough banks.

Juniperis communis depressa:—A very low, broad form of the common Juniper spreading widely. Suitable only for large rock gardens or for covering banks.

Juniperis communis hibernica, Irish Juniper:—Beautiful blue-green tree of narrow columnar form. Rather tender and apt to turn brown. Too large for ordinary rock gardens but fine in the background planting.

Juniperis communis montana (J. c. nana):—Low, spreading, pro-

cumbent, very slow-growing but finally reaches a height of two feet and covers the ground densely. Large rock gardens and banks.

JUNIPERIS CHINENSIS, CHINESE JUNIPER:—One of the most beautiful of evergreens, suitable for large rock gardens or background planting. Irregular columnar form and handsome gray-green foliage that colours a fine mulberry in winter. May be kept low and dense by clipping. Hardy and a fairly fast grower. There is a low, trailing form of this. *Pfitzeriana* is a handsome form of it with slightly drooping branchlets.

JUNIPERIS SABINA, SAVIN JUNIPER:—Spreading, semi-erect shrub of flaring, irregular growth. Handsome among large rocks. Keeps a good colour in winter.

JUNIPERIS SABINA TAMARISCIFOLIA, GRAY CARPET JUNIPER:—A low, slow-growing form of the above, soft gray in colour and fine for planting among large stones. It finally makes a broad mass. beautiful at all seasons. Transplant when young.

JUNIPERIS VIRGINIANA, COMMON CEDAR, RED CEDAR:—The various forms of the Virginia Juniper are nearly all too tall growing for the rock garden, but they are interesting and beautiful small trees that should be used near by, as their character harmonizes well with a rocky formation of ground. *J. v. globosa and J. v. tripartita,* however, are low, spreading forms suitable for bold rock work.

KALMIA ANGUSTIFOLIA, SHEEP LAUREL, LAMB-KILL:—A twiggy little shrub growing to a height of two feet, very gay when in early summer the twigs are crowded with clusters of bright pink saucer-like flowers. Requires a moist soil, largely composed of sand and peat.

*KALMIA POLIFOLIA (K. GLAUCA) SWAMP LAUREL:—A little low bush from six to eighteen inches tall that is very pretty in April or May when the slender stems are hung with pinkish-purple bloom. It is the first of the Kalmias to bloom. Likes a moist soil with sand and peat. *K. polifolia mycrophylla* is a prostrate, trailing form, found high up in the Rockies in damp, peaty hollows. It has narrow leaves and widely flaring crimson cups. Where can we get this?

*LAVENDULA:—Well-known gray-leaved shrub, the dwarf compact forms of which are suitable for a place in the rock garden. Good

grown in walls with hot exposure. The narrow-leaved forms are hardiest. Clip to keep from growing leggy.

*PICEA ALBA ALBERTIANA:—A delightful little pointed Spruce, so slow-growing that a plant eight or ten inches tall is about eight years old. It would remain in scale with its surroundings in a rock garden for a long time. This tree has but recently come into commerce. It is a form of the White Spruce found in Alberta by Mr. Jack and brought to the Arnold Arboretum. All the plants now in existence have been derived from these.

*PICEA EXCELSA COMPACTA NANA, DWARF NORWAY SPRUCE:—A depressed, sub-globose little tree with dense, horizontally spreading branches and short thick branchlets. Very dwarf, and of prodigious dignity.

PICEA EXCELSA CLANBRASILIANA:—Compact and rather broadly conical, with short crowded branches and short thick leaves. Finally reaches a height of five or six feet but grows very slowly.

*PICEA EXCELSA DUMOSA:—A little prostrate Spruce, crouching low on the ground. Distinct and alluring.

*PICEA EXCELSA CAPITATA:—A low, dense, irregularly spreading form, having the appearance of great age. Delightful.

*PICEA EXCELSA GREGORYANA:—A fat, dumpy atom of a Spruce, bristling with "needles" that point in all directions. One of the best. Two feet.

*PICEA EXCELSA MAXWELLII:—The most fascinating of pygmy trees, low, irregular, cushiony in form, apparently cowed and tortured by ages of elemental hardship. Brown branches and light green foliage. Growth particularly lovely in spring.

*PICEA EXCELSA PYGMAEA:—Tiny, self-sufficient mite, sometimes reaching the dizzy height of two feet. Very dense and proudly pyramidal in growth. A treasure of a tree.

*PICEA EXCELSA REMONTII:—A fine pyramidal little Spruce, squatting broadly upon the ground after the manner of its kind. Rich green in colour, with short thick branches. One of the best.

PICEA MARIANA DOUMETII:—A low, dense, pyramidal form of our native black Spruce. The variety *Beissneriana* is similar but the foliage has a distinctly bluish cast.

PICEA ORIENTALIS COMPACTA:—A fine little tree for bold rock work, reaching a height of about three feet but growing broader than tall. A delightful form of the Oriental Spruce.

*Picea orientalis nutans:—Attractive little Spruce with slightly drooping branches. *P. o. naua* is more upright and of lesser height. Leaves rich dark green and shining. Very slow-growing.

*Leiophyllum buxifolium (Dendrium buxifolium), Sand Myrtle:—A delightful little bush from the pine barrens of N. J., with dark Box-like leaves and a smother of white flowers in April, lasting many weeks. Grows only about eighteen inches tall and is compact and orderly. Half shade, sandy soil. The variety, *prostratum*, is found in the high mountains of North Carolina and Tennessee. It is dwarfer and closer-growing and blooms as freely. Invaluable shrub for small rock gardens. Perfectly hardy in the neighbourhood of New York.

Lonicera nitida:—Small specimens of this evergreen Chinese Honeysuckle are being offered by some concerns as suitable for rock gardens. It must be remembered that the shrub finally reaches a height of six feet.

Mahonia Aquifolium (Berberis Aquifolium), Oregon Grape:—A handsome shrub from the Northwest, having leaves like the Holly and growing from three to six feet tall. The blossoms, yellow and fragrant, are borne in panicles very early in the spring and are followed by dark bloomy fruits. Plant in shade. Suited for large rock gardens as far north as Massachusetts.

Mahonia repens (Berberis repens), Rocky Mountain Grape:—A dwarfer species seldom growing a foot tall and hardier than the last. Holly-like leaves and racemes of showy yellow flowers. Increases by means of underground suckers, and is a good plant for rough, shaded parts of the rock garden. Colours handsomely in autumn.

Muehlenbeckia nana, Wire Plant:—A wiry little ground-cover with tiny leaves scarcely reaching a height of three inches. Likes a sunny position in light soil. Has proved hardy here.

*Pachystima Canbyi (Pachistima), Mountain Lover, Rat-stripper:—A little low plant, spreading and holding itself close to the ground, the branches often rooting. Small, narrow oblong leaves and little brownish-red blossoms from the axils of the leaves. It is found on cliffs and hillsides in southwestern Virginia and northwestern North Carolina.

Pieris floribunda (Andromeda floribunda), Mountain Fetter-

BUSH:—A handsome broad-leaved evergreen bearing white blossoms early in the spring. Too large for rock gardens save of considerable size. Dry, shady places.

PINUS MONTANA, SWISS MOUNTAIN PINE:—This is the little pine of the highest alpine slopes. Irregular, picturesque in form, dark in colour, and vigorous. Grows broader than tall and snow left to lie on the flat top is apt to injure it! Delightful but too large for small rock gardens. Likes high windy places.

PINUS MONTANA MUGHUS, MUGHO PINE:—Lower growing and more spreading than the last. Looks well among large stones and forms a fine background for the brilliant late-flowering *Tulipa Sprengeri*.

*PINUS MONTANA UNCINATA:—Said to be the lowest growing form of the mountain pine, spreading broadly but remaining dwarf and compact. All these pines hold a fine rich winter colour, very different from the fainting, pallid Arborvitaes.

RETINISPORA:—*See* CHAMAECYPARIS.

SCIADOPITYS VERTICILLATA, JAPANESE UMBRELLA PINE:—A tree that grows a hundred feet high in its own country, but so slowly in ours that it may be given a place in large rock gardens for the sake of its distinct appearance and fine dark colour. It is hardy in Massachusetts, but likes a soil much like that enjoyed by Rhododendrons, and some shelter from cold winds.

TAXUS BACCATA ERECTA:—An attractive form of the English Yew forming a close dark column, rather too formal for use in the rock garden. The variety Ouverandi is even slighter and more compact. These are apt to suffer in the winter severity of Massachusetts, but I have found them safe here if planted in shade and protected lightly.

*TAXUS BACCATA ERICOIDES (MICROPHYLLA):—A dwarf bushy form with slender branches and narrow pointed leaves.

TAXUS BACCATA FASTIGIATA (HIBERNICA), IRISH YEW:—Very rich and dusky in colour but growing too large for any save very extensive rock gardens. Formal in effect with stout branches held closely to the main stem. Requires a sheltered position and is less hardy than the English and Japanese Yews.

TAXUS BACCATA REPANDENS:—The hardiest of the English Yews, being quite safe in Massachusetts. It forms a flat-topped spreading bush, not more than two feet tall with dark lustrous

leaves. Fine for covering banks or for bold use in large rock gardens.

TAXUS CANADENSIS (T. MINOR), CANADIAN YEW, AMERICAN YEW, GROUND YEW:—Low, spreading bush, growing slowly to a height of three feet. The leaves are a lighter colour and less densely set than in the English Yew. Apt to rust in winter, but hardy in very cold localities. Found in low rather moist places.

TAXUS CUSPIDATA, JAPANESE YEW:—A bushy tree that attains a height of fifty feet. Small specimens are often planted in rock gardens, but this species grows more rapidly than the other kinds and should be planted only where it can have plenty of room. It is very hardy and keeps a fine winter colour even when planted in the sun.

TAXUS CUSPIDATA BREVIFOLIA (T. CUSPIDATA NANA):—A report from the Arnold Arboretum describes this as having very dark green leaves, wide spreading, rather irregularly growing branches. It attains a height of only three to four feet but sometimes covers a space ten to fifteen feet in diameter. Considered by the Arnold Arboretum the "most valuable of all dwarf evergreens," but it is no subject for a small rock garden.

THUJA OCCIDENTALIS, COMMON ARBORVITAE:—There are numerous dwarf forms suitable for growing in large or small rock gardens. Some of the best are:

*THUJA OCCIDENTALIS HOVEYI:—A dwarf egg-shaped form, broad at the base and compact.

THUJA OCCIDENTALIS GLOBOSA:—Low spreading form, dense foliage that turns a poor colour in winter. T. O. Speelmanii is rounder and very pretty.

THUJA OCCIDENTALIS, LITTLE GEM:—One of the most engaging of small evergreens. A little round of soft foliage growing broader than high.

*THUJA OCCIDENTALIS PYGMAEA:—Little dwarf blue-green bush of upright habit. Attractive. *Pumila* is also a good dwarf form, dark and compact.

THUJA OCCIDENTALIS SPAETHII:—A dwarf upright growing bush, dark in summer and bronze in winter that has two kinds of foliage, both adpressed and spreading.

*VACCINIUM VITIS-IDAEA, COWBERRY, MOUNTAIN CRANBERRY:—Delightful in flower and fruit. A little shrub six to ten inches

tall, creeping, with dark shining leaves that turn a fine bronze-red in autumn, and sprays of waxen pink bells followed by scarlet berries that persist throughout the winter. A good rock shrub for well-drained positions.

Deciduous Shrubs for the Rock Garden

AZALEAS, various for large rock gardens.

BETULA NANA, DWARF BIRCH:—Three feet. Graceful light little tree that looks well among the evergreens.

COTONEASTERS:—*Horizontalis, microphylla* and its dwarfer form, **thymifolia*, and **adpressa*.

CEANOTHUS AMERICANUS:—New Jersey Tea.

DAPHNE MEZEREUM, also D. *Genkwa, D. Collina* and *D. Blaygayana*.

*GENISTAS (VARIOUS):—Easily raised from seed.

*HYPERICUM BUCKLEYI:—Dwarf spreading shrub from mountains of North Carolina and Georgia. Yellow flowers in summer. Sunny position.

*POTENTILLA FRUTICOSA and other shrubby Potentillas.

PRUNUS BESSEYI, WESTERN SAND CHERRY:—One to four feet. Procumbent branches wreathed in white blossoms. Large rock gardens.

PAEONIA MOUTAN:—Tree Peony.

PHILADELPHUS MICROPHYLLUS:—Dwarf, small leaves, small sweet-scented flowers.

*RHODORA CANADENSIS:—Charming native shrub blooming in spring. Dwarf.

*SPIRAEA CRISPIFOLIA:—One foot. Neat little bush with reddish flowers.

*SPIRAEA DECUMBENS:—Only a few inches tall. White flowers.

*SALIX RETUSA:—Prostrate, creeping Willow with large catkins.

SYMPHORICARPOS ALBUS PAUCIFLORUS:—Dwarf Snowberry. Low shrub from the Northwest. Spreads rapidly. Tiny pink blossoms followed by white berries.

VACCINIUM, HUCKLEBERRY:—Numerous dwarf deciduous forms.

VIBURNUM CARLESII:—Beautiful new shrub from Korea with heads of pink sweet-scented blossoms in April.

CHAPTER XVI

Annuals for the Rock Garden

ALTHOUGH a wide use of annuals in the rock garden is not generally to be advocated the same emergencies are met with there as in other parts of the garden when we are glad enough to turn to the willing annual to save the day. There are the bare places left over the heads of departed bulbs where we have failed to provide a permanent coverlet of some small creeper; gaps where one or another little plant has succumbed to damp or cold; newly constructed areas to be hastily covered, and so on. Moreover, after June the tide of colour in the rock garden begins to ebb and it is not long before eyes that seek only colour would have little to feast upon did we not sow here and there patches of these flowers whose heyday is the summer.

Of course, the kinds chosen to grow among the rock plants must be low in stature, but when you come to try them you will find that not all dwarf annuals, by any means, are suitable. Many bear too unmistakably the stamp of the border, are too usual and conventional in appearance to look at home among the shy wild flowers of hill and plain that largely make up the population of the rock garden; and many are far too unrestrained and rampant in growth to be safe com-

panions for them. I should not plant in a rock garden Verbenas, Petunias, California Poppies, Mignonette, Liliput Zinnias, Sweet Alyssum, Candytuft, or any of the regular border dwarfs. Rather is it better to search out small, choice kinds that have something of the character of the rock plants themselves, their tidy and more compact growth, their charm and individuality, and that have not suffered the touch of the improver. There are a great many of these, though one has usually to browse through several catalogues in order to collect a dozen or so, for they are not common.

The species and varieties given below are all good for our purpose. After the first sowing many will reappear year after year, sowing themselves among the stones and along the rocky paths without our help, but none will become over-intrusive or in the way. Sow the seed thinly and thin out the seedlings rigorously so that each little plant will have room for free development. The varieties marked * are suitable for planting among very small plants or over small, choice bulbs; they are very dwarf and do not grow with undue energy.

ANAGALLIS MONELLI:—Grows six to eight inches tall and bears through the late summer and autumn round blossoms in various shades of red, crimson, and lilac. Endures several degrees of frost.

ANAGALLIS MONELLI PHILLIPSII is a blue-flowered form that makes a delightful patch of colour in the sunshine.

ASPERULA AZUREA SETOSA:—The Blue Woodruff is one of the prettiest of dwarf annuals. It grows less than a foot in height and bears a profusion of gray-blue flower-heads above whorls of dusty-looking leaves. It thrives in sun or shade, in rich soil or poor, but for the best results should be sown as early in the year as possible. It self-sows freely and never comes amiss.

*Eschscholtzia tenuifolia:—Miniature California Poppies with the characteristic finely cut gray foliage and gay yellow flowers.

Eschscholtzia caespitosa is another delightful pygmy form. Both these should be sown very early in dry soil and full sun. They will bloom all summer if kept from seeding.

*Grammanthes dichotoma (G. gentianoides):—This is a very small South African succulent, no more than three inches in height, very good for a hot situation. It is brilliant when in bloom, having bright orange flowers. Best started indoors and set out after cold weather is past.

*Gypsophila muralis:—This little Chalk Plant has the wiry growth and thread-like stems common to its family. It bears quantities of tiny pink flowers throughout the summer and autumn, resisting the frost most valiantly for such a frail being. Lovely for sowing over the heads of small bulbs, or for outlining the crevices in stone steps. Its self-sown colonies are a delight wherever they appear. Hot sun and a dry situation.

*Ionopsidium acaule (Violet Cress):—An invaluable two-inch mite from Portugal with pale lavender four-petaled blossoms. It likes the cool sections of the rock garden and grows and self-sows with great freedom. It may be found in bloom at most seasons of the year that are not actually frost-bound. Sow early where it is to flower.

Kaulfussia amelloides:—A neat little South African liking a position in full sun. It grows about eight inches tall and bears bright lilac flowers with a dark disc.

*Leptosiphon hybridus:—The effect of this little plant when grown on the sunny plains or hillsides of the rock garden is indescribably bright and jewel-like. It makes a delightful spread of green not more than four inches high, from which spring dainty, many-coloured flowers in great profusion. Sow in early April.

Limnanthes Douglasi (Meadow Foam):—A rather vigorous but lovely plant from the plains of California, suited for growing in dry, arid parts of the rock garden in poor soil. It has a lax rather trailing habit and bears fragrant yellow flowers, white-edged, that the bees love. Self-sows.

Mimulus moschatus (Musk):—Almost too vigorous for the rock garden, but so floriferous and pretty that it may be tolerated along shady paths. Flowers yellow and fragrant.

MESEMBRYANTHEMUM TRICOLOUR (FIG MARIGOLD):—A small distinct plant with rose and white flowers, liking to grow in sandy loam in a hot and dry situation.

NEMOPHILA INSIGNIS (BABY BLUE EYES, LOVEGROVE):—A popular representative of the rich California flora, this little plant is a delight for many weeks in the summer if given a half-shaded position in fairly good soil. Its habit is half trailing and it bears a profusion of round sky-blue blossoms with white eyes. Several sowings may be made in order to keep up a succession.

OMPHALODES LINIFOLIA (VENUS NAVELWORT):—A delightful Portuguese annual with gray leaves and white flowers. It grows from nine to twelve inches high, so requires more space than some of the others. Sow early. The plant often self-sows when once established.

PHACELIA CAMPANULATA (CALIFORNIA BLUEBELL):—Few plants display a more perfect blue than this. It makes a lovely carpet where there is plenty of room, in warm soil and sunshine. Seed may be sown indoors and the plants set out after frosts are past.

PLATYSTEMON CALIFORNICUS (CREAM CUPS):—A lovely Poppywort with trailing gray stems and leaves and inch-wide, pale yellow blossoms that decorates the hillsides in parts of California. It requires a sunny position and a good deal of room. Once made to feel at home it self-sows freely and the plants thus come by are commonly more vigorous than those raised from seed in the ordinary way.

SANVITALIA PROCUMBENS:—A vigorous six-inch trailer, not of the first order of excellence but useful in an emergency. The small bright yellow blossoms, like miniature sunflowers, are produced in amazing profusion.

SAPONARIA CALABRICA (ANNUAL SOAPWORT):—Also useful in an emergency. Vigorous tufted growth and pink flowers.

*SAXIFRAGA CYMBALARIA:—An attractive, neat trailer, with fleshy trilobed leaves and citron-yellow flowers. It likes shade or partial shade, and when comfortable will perpetuate itself indefinitely.

*SEDUM CAERULEUM:—A good little Stonecrop seldom exceeding a height of three inches. It is very neat and compact and creeps over the soil in a restrained way, covering itself with light blue blossoms. It should be sown where it is to flower on some sunny raised position, or in dry crevices of steps or paved paths.

APPENDIX

APPENDIX

NOTES ON GROWING ROCK PLANTS

THE following notes and observations are the result of my fifteen years' adventuring with rock plants and alpines in two gardens differing considerably as to soil, climate, and altitude.

They do not pretend to be final for all localities, but it is hoped that they will serve as a point of departure for those newly embarked on this most fascinating phase of gardening. All the plants mentioned are, except where otherwise stated, at the present time offered in this country, or may be raised from seed with little difficulty, and all are now growing or have grown at some period in my garden.

ACAENA.—Prostrate spreading plants of the Rose order, chiefly important for their attractive foliage. They will grow in poor soil, in dry sunny places, and make a pleasant ground-cover, but their encroachments on the premises of choicer plants must be guarded against. They come from New Zealand, Chile, and neighbouring islands, and I have found them not entirely hardy unless given some protection. Easily raised from seed. Three good species are:

A. Novae Zelandiae, very pretty leaves and reddish burrs.

A. microphylla, the best that I have tried, with lovely glaucous leaves and quaint little burrs with red spines.

A. Buchananii, very flat and close-growing, the leaves gray and attractive.

ACHILLEA (Yarrow).—Dwarf members of this numerous family are useful in the rock garden but are not of striking beauty. All require a dry, hot situation in soil that is sharply drained, for they not

only suffer from standing moisture in winter, but are made wretched, even unto death, by continued moist heat in summer. They have attractively cut leaves and the "daisy" flowers that are the badge of their order. They are all easily raised from seed or increased by division.

A. ageratifolia (See *Anthemis aeizoon*).

A. Clavennae.—A plant of the European Alps, sometimes descending into the valleys. One of the best of its kind, with a fine low spread of deeply cut silvery foliage and white flowers in June on six-inch stems. A gritty soil and sunshine are the sum of its desires.

A. serbica.—Another good sort that spreads into gray-green mats a foot or more across and sends up a fine display of white blossoms in early summer.

A. tomentosa.—Less attractive than the white-flowered sorts, but an amiable plant, having a neat tufted green growth and flat heads of yellow flowers on eight-inch stems in summer. Likes sunshine but is less sensitive to damp than the others named.

A. umbellata.—A dwarf of considerable charm forming tufts of beautifully cut silvery leaves and pretty white flowers in June. A good subject for sunny walls. From high Greek mountains.

ACTAEA (Baneberry).—Too tall-growing for the rock garden but suitable for its environs and for woodsy places. *A. alba* and *A. rubra* are native plants with handsome compound three-parted leaves and heads of fluffy white flowers followed by conspicuous fruit, china white or coral red.

ADONIS.—Early-flowering plants of the Buttercup order, of easy culture once they are established but deeply resenting disturbance. Seedlings are easily handled but seed germinates very slowly, sometimes lying dormant for a year.

A. amurensis.—Flowers in early April before the leaves are fully matured—a single large golden blossom shaped like an Anemone upon each stalk. Likes sunshine and a good loamy soil. Dies down soon after flowering.

A. vernalis.—An old garden plant that should have a place in a warm corner among Arabis, Hepaticas, Crocuses, and Aubrietias. Grows a foot tall and bears a solitary gold blossom upon each leafy stalk. Enjoys a rather heavy loam in sun or half shade, and while the plants are slow to increase, a nice colony is well worth waiting for. In full bloom March 20, 1923.

AEGIPODIUM (Goutweed, Soapsuds).—Avoid it as the plague. (See Chapter XI.)

AETHIONEMA.—These plants are among the rock garden's choicest furnishings, not showy, but having a most gentle and compelling charm. They come from sun-baked climes, and must be given the dryest and sunniest locations on the rock garden, but they survive our bitter winters perfectly if assured of free drainage. I have had them persist for years in a dry wall facing due south, at the foot of which lusty seedlings sprang up and throve in the gravel path. They root deeply and require a comfortable depth of gritty soil with a little lime. Old plants are difficult to transplant but seedlings are easily handled and the Aethionemas come readily from seed. There are a good many kinds but the following are a good selection:

A. armenum.—A small beauty but three or four inches tall, with blue-gray pointed leaves and rounded heads of pinky-mauve flowers. A love for a hot crevice, but perfectly hardy. *A. Warley* is a form of this.

A. jucundum.—The plant I have under this name is a real treasure, very low and spreading broadly, and bearing before any of its relatives here splendid heads of bright pink blossoms at the end of every little branch. The leaves are blue-gray.

A. grandiflorum.—This is taller-growing than most of the species and perhaps more generally trustworthy. A beauty with heads of lovely large pink flowers borne at the tips of its foot-long half-prostrate branches. A fine subject for a dry wall open to the south.

A. pulchellum.—A most precious little blue bush with heads of pale pink flowers in early summer. Easy, enduring, and lovely. Seems to be the same as *persicum* or near it.

A. schistosum.—New to me this year, but the plants have come safely through the winter and the neat little blue-green bushes look decidedly promising. The pink flowers are said to be large, the plant compact and erect.

AJUGA.—Do not admit to the rock garden if your heart is set upon choice plants. If you must have a Bugle choose *A. genevensis*, which is the most conservative. (See Chapter XI.)

ALCHEMELLA (Ladies' Mantle).

A. alpina is a modest plant that has only its shining, silver-lined leaves to recommend it, since its small greenish blossoms are of no

account. Small colonies are attractive in open sunny places. Six inches. Division.

ALLIUM.—A vast race few of whose members are worth cultivating and fewer still worthy of the rock garden. But all are wholly easy and amiable, thriving in sunny places in any good soil. The West offers some quite pretty forms and for the foreigners we must depend upon seed which germinates readily, the bulbs flowering the third year. They spread rapidly by means of offsets.

A. cernuum.—A beautiful species from the Alleghanies and West, flowering for several weeks in early summer. The stems grow a foot or more tall and are crowned with heads of nodding pale lavender flowers. Has the characteristic "onion" foliage.

A. cyanium.—A pretty dwarf with hanging heads of light blue flowers in May and June. I raised this Chinese species from seed.

A. moly.—The Lily-Leek of Spanish woodlands, and a rampant spreader once it gets a fair start; but the nodding yellow flowers are pretty and if it may be given an unwanted corner it is well worth growing.

A. narcissiflorum (*A. pedemontanum*).—Mr. Farrar says this is the glory of the race and describes it as growing eight or ten inches tall and bearing "great pendent bells of glowing, vinous red." I have this only as yet in its paper packet, but it sounds worth while.

A. reticulatum.—A pretty dwarf white-flowered form sent me from the Northwest. Six inches. Hardy.

A. stellatum.—Another Western species bearing nodding rose-pink flowers on stems eighteen inches tall. "Lovely on the dry sandy ridges where it grows in hundreds of plants." July.

ALSINE.—A numerous race of tiny plants displaying little variety and much entangled with *Arenaria.* Not showy but attractive for covering the ground with bright green moss-like verdure spangled in season with minute white flowers. Easily raised from seed.

A. laricifolia.—Lovely green carpeter only a few inches tall for sunny, stony places. A perfect ground-cover for small bulbs.

A. pinifolia.—Small dense tufts with white flowers on lax, six-inch stems.

I have some interesting appearing Alsines from the West but am not yet able to identify them definitely, or to pronounce upon their worthiness for the rock garden.

ALYSSUM (Madwort).—Friendly and indispensable plants for

the spring garden, requiring only a hot, dry situation for their comfort and giving a wealth of bloom in return. They are easily raised from seed and many sow themselves freely. A numerous race of which a few are all we shall want in the rock garden.

A. argenteum.—A bushy species growing eighteen inches tall and covered in late April with flat heads of small greenish-yellow flowers. A good plant for a sunny wall top, but to be admitted to the rock garden only where there is plenty of room.

A. montanum.—Delightful small mountain plant spreading into a close mat not more than three inches high, its gray surface peppered with yellow flowers in May. One of the prettiest and worthy a warm ledge. Resents damp.

A. pyrenaicum.—Another small species with downy leaves and white flowers. Difficult to keep as it appears not able to endure the least dampness.

A. saxatile.—A plant for everyone and anywhere. Indispensable for the spring garden with Arabis and Aubrietia—all three raised from seed as easily as Nasturtiums and making certain a gay display in the April garden. The Golden Alyssum is a gray, spreading plant ten inches tall, bearing small heads of yellow flowers in mad profusion. They love sunshine and ask little else.

A. saxatile citrinum is a great improvement as far as colour goes, the pale corn-colour blossoms being very lovely to combine with *Nepeta*, or lavender *Phlox subulata*. A lovely plant for a dry wall. More sensitive to damp than the type.

A. serpyllifolium.—The smallest and a love. A little dainty gray-leaved thing, prostrate and smothering itself in yellow bloom in late April. A choice plant for a warm dry corner.

A. spinosum.—One of the few white-flowered forms and distinct from its kin by reason of its half-shrubby form. It makes a dense bush almost a foot high and as much across covered with small hoary leaves that in the late spring are lost in a drift of small white blossoms. It is a native of the south of France and in our severe climate I find it generally appearing rather debilitated after a cold winter. It does not die with me, nor does it thrive. There is a pink-flowered form.

ANCHUSA.—*A. Myosotidiflora* is the sole Alkanet to be admitted to the rock garden, and then only when there is room to spare for its large leaves and its determined seeding. It is persistent in this

neighbourhood only when given a dry, well-drained situation but thrives in sun or partial shade. It bears huge sprays of bright blue "Forget-me-nots" on stems eighteen inches tall at the same time that Tulips are out.

ANDROSACE.—These are typical high alpine plants, inhabiting the highest mountain ranges of the world, and lovely and desirable almost beyond any others. Among them are some that tax the skill of those most learned in the ways of the small mountain people, but there are others less aloof and frigid that we may bring into our lowland gardens with a very fair chance of success. Accustomed in their native environment to the pure air, the short brilliant summers, the abundant moisture draining quickly away, and the long snow-blanketed winters, the change to our terrible freeze and thaw, wet and dry, and the burning, moistureless summers is trying in the extreme, and to grow any of them with success we must do our best to guard them against these extremes.

A dry cold winter has no terrors for them, but they suffer inevitably in a mild one, as they do in spells of moist, humid weather at any season. I have found the kinds mentioned below to do well on stony slopes facing south, in gritty soil with stone chips sprinkled among the rosettes.

A. carnea.—Tufts of bright green, downless foliage an inch or so tall, and small loose heads of rosy blossoms on slender stems. May be grown on a level ledge if drainage is sharp and certain. Lovely.

A. Chamaejasme.—This forms large rosettes of fringed leaves. The blooms are borne on stout little stems frequently not more than one inch high, but varying to five inches. It thrives best on an open spot, in deep, well-drained light loam, nearly covered with pieces of broken rock to prevent evaporation. I have not grown this plant, but as it grows not only in the mountains of Europe and Asia, but in our own high mountains, it has a special interest for us.

A. coronopifolia (*A. lactiflora*).—A sprightly little biennial species of quite irresistible charm, having small rosettes of pointed, toothed green leaves and delicate sprays of white flowers on fragile stems. Easy to raise from seed and to keep thereafter, for it sows itself freely in all sorts of places, making a charming mist with its frail flowers. Too small and dainty ever to become a nuisance. Any sunny place on the rock garden.

A. lactea.—An easy and lovely plant forming mats of shining

spiny little green rosettes from which arise slender, waving stems, each carrying a spray-like umbel of white flowers with a yellow eye. Likes sandy leaf-soil with the surface freely sprinkled with crushed stone, and an eastern or western exposure. Easy to raise from seed.

A. lanuginosa.—A beautiful trailing plant from the Himalayas that gives a long display in summer of pink Verbena-like flower heads above its masses of silver foliage. A sandy soil is the best for it and it loves a warm and sheltered slope. I have found this plant slower of increase than some of the others, though this is not the story usually told of it. Very nice near some of the small vigorous Campanulas and as a carpet for Crocuses.

A. primuloides.—The plant generally sold in this country under this name is *A. sarmentosa.* I have never seen the genuine kind.

A. sarmentosa.—Easy, lovely, and enduring—even rampageous when it is happily settled. It ramps into broad mats of ample rosettes, first softly gray, then green, above which riots a small forest of pink Verbenas in early summer. In all directions it sends out runners finished with neat rosettes which may be pegged down with a hairpin and covered with gritty soil when they will root readily, extending the beauty. Himalayan.

A. sarmentosa Chumbyi.—A most lovely and willing plant, smaller in all its parts than the type and more compact, though spreading broadly. Its rosettes are silvery and above them in late spring waves a sea of rosy blossoms on stems a few inches tall. A real beauty and the easiest to grow of my experience, thriving on any flat or sloping place where the drainage is sure and free and the sun beats hotly.

A. sempervivoides.—Another Himalayan, both easy and lovely, spreading into mats of small dark green rosettes, tight and flat and smooth, and sending aloft quantities of the gay little Verbenas on stems three inches high. Loves, like all its kin, a warm spot in stony soil where the rosettes may ramify widely. May.

ANEMONE.—These beautiful flowers increase their numbers slowly in our gardens, for they are slow and difficult to raise from seed and the quarantine enactment has cut us off from most of the glorious foreign sorts. Collecting Anemones has become a matter of hazard and chance; occasionally we are careful and patient enough to win some success with seed, occasionally—and how joyous and memorable is this occasion—a friend with a well-stocked pre-quaran-

tine garden hands us out a root of some such dear delight as *blanda*, *alpina*, or the lovely Lady of the Snows, *Anemone vernalis*, but for the most part these keenly desirable spring flowers are beyond our reach. One grain of comfort only remains to us in our bereavement in that we are rather rich in Anemones ourselves, can we but get at them. The modest Windflowers of the East we know, but the West is alight with rarer kinds, and that many of these may be brought to shed their radiance in our Eastern gardens is, I feel sure, no impossible dream. But first we have to create a demand for them so that someone will blaze a trail to their haunts in the high meadows and grassy hillsides, and then we have to learn how to please them. What little experience I have had I set down for what it is worth.

American Anemones

A. canadensis (*A. dichotoma*, *A. pennsylvanica*).—This plant ranges widely in the East and in the West, and where it is happy ramps like a weed and where it is not pleased sulks like the most exclusive exotic. It grows to a height of about eighteen inches, and bears its pearly buds and wide blossoms, rich in golden stamens, on slender foot stalks well above the handsome leaves with a grace of carriage exceeded by few flowers. It is not a plant for the rock garden, a graceless outlaw, lovely and conscienceless, that will take what is its neighbour's without hesitation, but on a bank, among Ferns and wild Geraniums and Columbines, it is a treasure.

A. Drummondii.—From a Western correspondent I received a few roots of this lovely little species that is at home in high mountains of the West. It has wintered safely in the rock garden and bloomed once, a lovely white buttercup with faintly bluish exterior and finely divided leaves, the whole about six inches high. It was planted in grit and leaf-soil, in a sunny spot.

A. globosa.—This little reddish Windflower I once had from Mr. Andrews, of Boulder, Colorado. It lived for several years in the old garden and finally went to its rest because it was overlooked in the overhauling of its bed. This I believe is the most usual form met with in the low valleys of the Rockies, and while not showy, is pretty for a sheltered corner.

A. Hepatica (*Hepatica triloba*).—This dear little spring friend is as welcome in the garden as it is in the woods, and all whose desire for spring blossoms has a keen edge should encourage these audacious

heralds of the new order to linger along the shaded ways of the garden. One is always rejoiced on a blustering March day to come upon the clusters of furry buds nestled at the heart of last year's rusting leaves. There are several colours—white, pink, lavender, and a good blue, strong but tender, and these are the best of all. I have a little bed of blue Hepaticas on the rock garden that is one of my special spring delights.

A. occidentalis.—A few roots of this lovely thing from Mr. Purdy. It bloomed after it was set out in the garden, a lovely white star opening from a silver bud, its foliage minutely divided. Its home is in alpine regions of the Rockies and perhaps elsewhere. It is beautiful and wholly desirable and may well console us for the loss of some of the fine exotic sorts. A winter has just passed over its head and I am watching hopefully for its reappearance.*

A. patens (*A. Nuttaliana*).—Friends in the Northwest sent me a box of this species, which is close to the European *A. Pulsatilla.* They were in bud when they came and I set them out on the rock garden on a sunny slope, spraying them gently to cleanse them of the dust of their journeying. The next morning there were dozens of the exquisite amethyst cups held up to the sun and wind as composedly as if on their native hillsides. Our Pasque Flower is a lovely thing, sending aloft a silk-sheathed stem to a height of eight inches crowned by a bud that gleams like silver, and opens into a purple flower lined with deeper colour. My friends write that it grows on grassy mountain sides or in high meadows in light soil. It has proved perfectly hardy here over its first winter and flowered freely the second spring. I did not lose a plant.

A. quinquefolia.—This is the little fragile Windflower of our Eastern woods, familiar to all who wander afield in April. It should be encouraged to gather in little groups along shaded garden ways and in sheltered corners of the rock garden.

A. virginiana.—Not good enough for garden culture.

Foreign Anemones to be Had in U. S. A.

A. nemorosa.—This is the common Wood Anemone of Europe, delicate and charming. It has several lovely forms and one looks with covetous eyes upon their names in foreign catalogues. I have the lovely light blue form, *Robinsoniana*—a cherished gift from a good

*Wintered well and blossomed freely in April.

friend—and quite a nice colony of the double white form, spirited and upstanding, and apparently easy to please with a cool nook.

A. Pulsatilla.—A beautiful plant of hot dry meadows, suitable for sunny places on the rock garden or along the edges of open borders. Bears huge purple cups before the silken, finely cut leaves mature, followed by plumose seed vessels almost as decorative as the flowers. Easily grown. There is a white form. Early April.

A. sylvestris.—A German woodland plant growing twelve inches tall with nodding white flowers, large and fragrant. Very attractive but equipped with seven-league boots—a practiced runner, only to be trusted in a corner where there is room for it to be beautiful and rampageous, and there are no small things to be trodden under foot.

A. vernalis.—The beautiful Lady of the Snows! Who would not like to gaze upon her blossoms, "sitting upon the moor, like some mystic Water-lily, a great goblet-shaped flower, staring up at the sun, white as an opalescent pearl within, tasselled with fire, while the outside of the pearl is ashimmer with gold and violet silk, iridescent as it catches the sun in countless shifting shades of lilac and fawn and milk"! I have a root of this marvel tucked away in the most salubrious spot I could devise, in loose, leafy soil in sun, and await the revelation. If it lives I shall rejoice as never before; if it dies I am afraid I shall go to my generous friend and beg one root more. (Have just seen that *A. vernalis* is offered by Mrs. Wolcott.) Where it grows naturally *A. vernalis* is a sturdy, happy plant, the spring flower most beloved and sought by children, bearing a different pet name in every neighbourhood. And its range is wide; one reads of it starring heathery German moors, shining midst sandy pine woods of the Scandinavian Peninsula, in Pomerania, in Silicia, in Russia, south to the Caucasus, in Alsace, the Pyrenees, the eastern and western Alps. How many hearts must they rejoice in this wide territory and how many millions of them must there be! How lonely must be my one little root tucked away in an alien soil so far from all that has hitherto meant light and life to it.

ANEMONELLA—*A. thalictrifolia* (*Thalictrum anemonoides, Syndesmon thalictroides*). The dainty little Rue Anemone, so burdened by botanists, is a happily familiar woodland plant. It is dainty and charming and quite worth a place on the cool side of the rock garden or in woodsy places. It is sometimes confused with the Wood Anemone, *A. quinquefolia*, but may be readily distinguished

from the latter by its cluster of flowers instead of the single blossom common to the true Anemone, and it blooms earlier.

ANTENNARIA—*A. dioica.*—A close-creeping grayish plant valuable for covering unconsidered places and as a coverlet for Crocuses. It has a pretty way of clinging about rocks that recommends it, and it will grow in any sunny place. A desirable sort from the Northwest is *A. rosea,* and there are numerous others can we but get them.

ANTHEMIS.—A numerous race very few of which are suitable for the rock garden and but a few more for the general garden. But when they are good, as in the case of the alpine species, they are very, very good, and should be awarded quite choice situations. In the main they have silvery, finely cut leaves and love with all their hearts heat and light, blooming in early summer and being quite hardy where the drainage is sharp. All easily raised from seed.

A. aeizoon (*Achillea ageratifolia*).—Perhaps the prettiest of the small Camomiles, but not the easiest to grow. It makes a fine slow mat of little silver rosettes, the leaves narrow and finely toothed, out of the midst of which arise on five-inch stems pure white "daisies." It likes the grittiest soil, the sunniest spot to be had. Seed or division. June.

A. Cupanniana.—A most attractive Italian form, larger and much more wide-spreading than the foregoing. It forms broad, low masses of gray, ferny foliage sprouting all over in early summer with white daisies that last a long time. It must have plenty of room, but will accept any sort of situation short of dense shade.

A. montana.—Forms a mass of gray, fine foliage a foot or more across from which arise in early summer quantities of creamy daisies. A good and easy plant, loving sunshine, but putting up with a good grace with partial shade. A nice companion for *Dicentra eximia.*

A. tinctoria.—Not suitable for the rock garden.

ANTHYLLIS—*A. montana.*—A shrubby little plant with grayish foliage and pinky-red pea-shaped blossoms in close clusters. Likes a hot corner.

ANTIRRHINUM.—The garden Snapdragons are too large and flopping for the rock garden, but there are a few that may be said to be perennial in this locality and which are small and less pervasive. They want the warmest and sunniest places in very well-drained soil. They may easily be raised from seed and sometimes will sow themselves.

A. Asarina.—A prostrate plant with frail fleshy stems, rather large grayish leaves, and pale yellow flowers. South of France.

A. glutinosa.—Not hardy in my locality.

A. sempervirens.—Another frail and prostrate plant with white and lilac flowers.

AQUILEGIA (Columbine).—Glad and graceful plants of mountain slopes and thin woods, many of them easy and friendly but some among the most difficult and distant. A light soil, loose and fibrous with leaf matter and sharp with grit and crushed stone, is best for them, and a position open to the sun for part of the day, but shielded from cold winds. They are easily raised from seed, and as established plants are difficult to move, it is wise to procure them by this means, though it must be remembered that the different kinds intermarry with such freedom that it is almost impossible to get the species true from seed unless it be personally collected. The tall, long-spurred hybrid varieties are for the ordinary flower borders, the list following contains some of the easier species which may be grown in the rock garden.

A. alpina.—Very difficult to get true seed. By the appearance of the rue-like leaves I think I have it now and await the soft blue blossoms with interest. *A. alpina* grows in rocky places among low bushes in the Alps, and is said to be a rare beauty. Requires a very well-drained soil.

A. canadensis.—The little graceful plant that makes a "scarlet rain" in rocky, woodsy places throughout the East. It is a slender, charming thing, blooming in April, and sowing its seed about in a delightful way. Should be in every collection.

A. coerulea.—The State flower of Colorado, slight, lightly poised, exquisite—but not easy to please, and never very permanent in Eastern gardens. It is dwarfer in stature than most of its kind, and more fragile, and the dainty blue-and-white flowers once seen ever linger in the memory as something choice and exquisite. It requires a perfectly drained soil wherein is much leaf material, and sun for part of the day. The true plant may be had of Mr. Andrews, of Boulder, Colorado, and seeds as well. There are some lovely hybrids, Mrs. Nichols, White Lady, etc.

A. flabellata.—A pretty, squat little Columbine from Japan, with handsome foliage, blue-gray in colour, and large shallow flowers, thick in texture, and of a soft lavender combined with creamy white. A

most amiable and desirable plant with a dwarfer variety called *nana*. They bloom early.

A. glandulosa.—Still a far vision.

A. Helenae.—A tall, handsome Columbine, with large cold blue-violet flowers. Lacks the light grace that is the charm of the race.

A. oxysepala.—Have not seen this variety but it is offered in this country as most desirable. It is from Asia and said to be closely related to the difficult glandulosa.

A. truncata (*A. eximia, A. californica*).—A species with a wide range through the far West, tall, with pendent, long-spurred flowers, red and orange in colour. Offered by Mr. Purdy. *A. chrysantha* is also a lovely Western species, ranging through Colorado, New Mexico, Arizona, and Texas. It has leaves like a Thalictrum, and charming light yellow flowers that, blooming later than the rest, continue throughout the summer. It is easy and a good perennial. Comes true from seed. All interested in our native Columbines should send for, "The North American Species of Aquilegia," published at the Smithsonian Institution, Washington, D. C.

ARABIS.—Contains some invaluable plants for the spring garden and rock garden, loving sunshine and easily made content. Seeds.

A. albida.—Too vigorous for small rock gardens but an indispensable furnishing for spring borders. Forms mats of gray foliage and sends up late in March or early April stems of white blossoms that are fragrant. With Golden Alyssum and Aubrietia will make of any sunny garden a spring paradise. Easily raised from seed. Has a fine double form.

A. alpina.—Said to be more refined and less pervasive.

Arabis alpina rosea is a most lovely form of the last, identical in all respects save that the blossoms are a soft blush-pink. This is an uncommon plant and best increased by cuttings, as the seed cannot be counted upon to come true.

Arabis aubrietioides, as I have it, has much the appearance of Aubrietia. Smaller in all its parts than Arabis and more compact. The blossoms are a lovely pale shade of rose-lilac. For a sunny sheltered spot, as it is reputed not of the hardiest.

A. Kellereri.—Small and desirable for a warm chink where the sun shines. Gray leaves, white flowers borne early, and a compact, conservative habit.

A. mollis.—A plant under this name is offered in this country but

I am unable to identify it in any authoritative work. It forms flat rosettes and creeps rapidly into wide mats, sending up a little later than *A. albida* slender stems of white flowers. It is an attractive little plant but bitterly resentful of winter damp and must be given a sunny, well-drained spot.

A. procurrens.—Do not know this species but it is offered as one suitable for prowling over cool rocks or banks. Has green leaves and white flowers on foot-tall stems.

Arabis rosea seems to be a biennial. It makes flat, grayish hairy rosettes from which arise stems to a height of six inches or so carrying a few rosy-lilac blossoms. It is especially sensitive to damp and should be given a dry position in full sun. Like all its tribe it bears seed freely and self-sows so that, although a biennial, we are in no danger of losing it.

A. Sturii.—Perhaps the best of the race. A dark green atom for sunny, well-drained exposures, with large white flowers on stems only two or three inches high. It makes fat little cushions.

ARENARIA.—There are most lovely and useful plants among the Sandworts for the rock garden, all easily raised from seed and amiable. There is confusion between these and the *Alsines.*

A. balearica.—A charming creeping moss, covering the earth and clothing damp stones in shaded places with bright green verdure starred with innumerable small white blossoms. Unrivalled for creeping along the joints of stone steps in shade, but is apt to become troublesome if allowed among choice plants. Two inches high. Is sometimes killed in very cold, snowless winters here.

A. caespitosa.—Even more mossy in appearance but less vividly green. Nice for the edges of the paths of the rock garden and useful almost anywhere. Tiny white flowers on thread-like stems.

A. gracilis.—A slender, small thing with narrow leaves and white starry flowers carried on tall stems. Good for a sunny place.

A. juniperina.—Mats and tufts of grayish foliage from which arise small white flowers on slender stems.

A. montana.—One of the loveliest of easy rock plants. Prostrate masses of dark, small foliage on slender stems and a wild profusion of large white blossoms in May. A beautiful plant for a sunny position in good, gritty soil where it may tumble over a rock. Easy to raise from seed and wholly desirable. Late May and early June.

ARISAEMA—*A. triphyllum.*—The familiar Jack-in-the-pulpit of

woods and copses. Not suitable for the rock garden but interesting and effective on shaded banks or in lightly wooded places in its neighbourhood.

ARMERIA.—The Thrifts are a friendly and invaluable family for the rock garden, loving sunny places, growing in a neat tufted fashion, and bearing charming heads of rosy flowers in generous profusion. May be easily raised from seed and most are contented with the plainest provision for their comfort.

A. caespitosa.—An exquisite, tiny, choice mound of diminutive, prickly rosettes with close down among them amazing large heads of pure pink blossoms. It requires your sunniest exposure in your most well-drained soil, in a crevice or on a stony slope, where no moisture could possibly linger about it in winter. This treasure has proved quite luxuriant here on a little south-facing slope wedged in among stones. I raised the plants from seed and think this the best way to get them, as they apparently resent disturbance. April.

A. cephalotes (*A. formosa, A. latifolia*).—A fine thing where there is room for its large rosettes and profuse seeding. It bears pink flowers in round heads on stems a foot tall and is most lovely and amiable for a sunny spot. Makes a good edging in the ordinary garden.

A. juncea (*A. setacea*).—A small, tight, neat edition of the Sea Pink; *P. maritima,* with dark narrow leaves from whose midst arise an amazing number of pink balls carried on short stems. Delightful and easy.

A. maritima.—The common Sea Pink or Thrift so long used for edgings. Its tufts of narrow leaves an ornament anywhere and its pretty pink heads always enjoyed. Its improved form, *Laucheana,* is perhaps better for the rock garden; it is somewhat closer in growth and its blossoms are a more definite pink. Any sunny, well-drained spot.

ARNICA—*A. montana.*—A plant of alpine and sub-alpine pastures, most difficult to please in cultivation. Said to enjoy a peaty soil, but under my care has refused all advances toward a friendly understanding and passed on. A foot tall, with large soft leaves and brilliant orange-yellow Daisies. There are numerous Arnicas in the West which may prove more amenable if we can get at them.

ARTEMISIA.—A vast race of which our Western Sagebrush is a representative. Few are suitable for the rock garden, but one or two may be admitted for their silver foliage.

A. frigida, sent me by friends from the Northwest, is a handsome silver-plant but not so beautiful as one sent under the name of *A. canadensis.* This forms a veritable silver mist, growing a foot tall and spreading freely in dry sunny places. Must be kept out of the way of small, choice subjects. Blossoms of no account. Some fine European species are, *assoana, lanata, pedemontana, glacialis.*

ASARUM—*A. canadense* (Wild Ginger).—Curious plants for woodsy corners with large handsome leaves and little brown blossoms borne just above the earth and concealed by the leaves. A native, Eastern plant.

ASPERULA.—The Woodruffs are dwellers among woods and on rocky hillsides. All that I know are lovely and worth growing.

A. cynanchica (*Squinancywort*).—A curious little plant forming a tangle of tenuous, wiry stems poorly clothed with tiny leaves and ornamented with tiny pink tubes nearly all summer long. Only on the hottest and dryest places does this little plant display its small charms. Grows three inches high and spreads into a thready mass a foot across. I raised it from seed, and it is perfectly hardy and easy.

A. hexaphylla.—A straggling, weak-stemmed thing, taking up a good deal of room and making little show. It bears pink trumpets on the long lax shoots that are sometimes used for cutting. Something in the fashion of Gypsophila but less sturdy and beautiful. Seed or division. Sun.

A. hirta.—A most precious treasure; a little plant composed of lax, leafy two-inch shoots that spreads by means of underground runners into a tidy grayish mat which is presently starred over with little rosy blooms. It wants light soil and a sunny spot and it is then no trouble at all. Here it has started coöperative housekeeping with *Campanula pusilla,* and the two are plainly pleased with the arrangement, creeping in and out among the stones, their shoots and roots happily intertwined, the blue bells and the pink stars making a very pretty small display. *A. hirta* is a very tiny plant and must needs be given a home secure from the floppings of larger things. Alps of Pyrenees.

A. nitida is said to be yet smaller, more charming, and more compact. I have not had it. Sometimes listed as *A. Gussonii.*

A. odorata.—The Sweet Woodruff, considered no plant for the rock garden but I always let it in for the sake of its tumbling masses of white blooms. Runs about freely in any half-wild, lightly shaded

places, blooming in early May, and forming wide masses of loveliness. Eight inches.

ASTER.—A numerous and widely distributed race not many of which are small and conservative enough for the rock garden.

A. alpinus.—Growing in luxuriant tufts from which spring abundant, large violet asters with a gold eye on stiff stems five or six inches high. There are white forms and also several with pinkish flowers. One, *Aster alpinus baldensis*, with branching stems, is particularly good. These are good and easy alpine plants that make a fine show in May and June in sunny places on the rock garden.

A. himalaicus.—Close and tufty in growth with large violet-blue blossoms on leafy stems.

A. linariifolius.—A good, erect little Aster collected on the hills of Rockland Co., N. Y. It grows about a foot tall and bears large purple blossoms on stiff stems well clothed with narrow rough leaves. It has the merit of keeping to itself and not spreading devastatingly from the root as do so many of its kind. (Offered by Edward Gillett.) I have received several pretty and very floriferous Asters from the West but they are all root spreaders that would be dangerous in the rock garden. Dry soil and sun.

A. subcoeruleus.—Spreads into wide mats of soft green leafage from which spring naked stems bearing large solitary lavender blossoms, gold eyed. A very beautiful species.

ASTRAGALUS—*A. syrinicus.*—Sole member known to me of a vast and almost world-wide family. A flat, quickly spreading plant with pretty ferny foliage and yellow pea-blossoms in summer. Spreads widely and must be kept out of the way of choice plants. *A. monspessulanus* is said to be an effective variety with reddish-purple flowers. It is not offered in this country but might be raised from seed.

AUBRIETIA.—Lovely dwarf-growing plants that should be much better known in American gardens. They do not require a rock garden for their comfort and will give rich spreads of splendid colour along the edges of sunny borders with Arabis and Golden Alyssum in the early days of the spring. Moreover, they are as easily raised from seed as Marigolds, blooming the second year. The plants should be well clipped over after flowering so that they will make a fine growth for next year's blossoming. The violet and lilac forms are especially lovely. All are fine for the rock garden, for dry walls or

the crevices between paved paths, as well as for open borders. The seed is very fine and should be merely pressed into the soil in a cold frame. It is quick to germinate, however, and dozens of little plants may be raised in a short time. Some of the best kinds are, Lavender, well named, tufty and compact; Doctor Mules and Prichard's Al, superb imperial purples; Fire King, bright crimson; Bridesmaid, blush; *A. cilicica,* lavender with white eye; *Wallacei,* perpetual bloomer, violet, compact habit; and a glorious lot of others. *A. tauricola alba* is a nice little species with white or very pale mauve flowers and a nice habit.

AURICULA (*Primula auricula*) (See Chapter IV).

BELLIS—*B. rotundifolia.*—A good deal of name for this minute Daisy from the Atlas mountains; a little neat gray tuft sending aloft many round pinky-white blossoms. Its variety *coerulescens,* is a real charmer, producing little blue-white Daisies all summer and fall until frozen hard. These are small treasures, and must be given warm nooks in sunny places and very well-drained soil. If happy they will self-sow freely and every little seedling is a fresh cause for happiness. Readily raised from seed.

BELLIUM—*B. minutum* (*B. rotundifolium*).—A tiny Greek Daisy worthy a choice location. Three inches. Blooms for a long time.

B. bellidioides.—A good deal like the English Daisy, Bellis perennis, that loves a sunny exposure and sandy warm soil. Spreads by means of runners and makes an attractive patch of delicate leaves and little white Daisies. South of France. Easily raised from seed.

BORAGO—*B. laxiflora.*—A cousin of the Anchusas, coarse, prostrate, with large hairy leaves and lax stems bearing all summer long clear sky-blue blossoms shaped like stars. It is a Corsican and not hardy in this locality save in the most sun-baked spots and in the dryest, poorest soil. Easily raised from seed. Requires space as it spreads out in a wide sprawling mat.

CACTUS.—Mr. Andrews offers a most interesting collection of native kinds, many of which will prove hardy in Eastern gardens.

CALAMINTHA—*C. alpina.*—A fine, spready, cheerful little rock plant, bearing at the ends of its ascending shoots violet blossoms with white lips all during the summer. It has an improved form, *grandiflora,* and both are easy and pretty in a dry and sunny place. Eight inches.

CALANDRINIA—*C. umbellata.*—Not hardy in this locality, but

a low, rather pretty thing with bright, satiny magenta blossoms. Dry, sandy soil in sun. Seed. Sometimes blooms the first year from seed sown early.

CALLIRHOE—*C. involucrata.*—A beautiful sprawling weed belonging to the West, bearing innumerable magenta Mallow blossoms, large and unashamed. It spreads wildly in dry sunny places, seeds violently, and is no plant for the rock garden. Poppy Mallow is its common name.

CALTHA—*C. leptosepala* (*C. rotundifolia*).—A Marsh Marigold of the Northwest, growing in damp alpine meadows, with rounded, shining leaves and white blossoms, tinged blue. (Mr. Andrews lists this.) Good near the rock garden pool in damp soil. Blooms early.

C. palustris.—The familiar golden Marsh Marigold of our Eastern bogs and wet meadows. May be established in damp, low portions of the rock garden or near the pool in full sun. Flowers in April.

CAMPANULA.—In this great family are some of the loveliest and most wholly enchanting of rock plants and alpines, as well as a great number of beautiful and useful plants for the open borders and for naturalizing in half-shaded wild gardens. They may be raised from seed in pans or a frame and increased readily by division. Some are sensitive and difficult to deal with, while others are like Buttercups and Daisies in their friendliness and readiness to grow under almost any conditions.

C. abietina.—A choice, very dwarf alpine plant, forming mats of foliage and bearing wide flat purple flowers on long slender stems. Divide frequently and set out in light stony soil.

C. alliariaefolia.—A tall sort, eighteen to twenty inches, weedy but attractive, with heart-shaped leaves and leafy stems hung with pointed white bells. Spreads rapidly and seeds freely. Fit only for the wild garden.

C. barbata.—A most lovely creature that behaves badly in my garden. It bears charming pale blue bells on stems from six inches to a foot, and is said to desire an open sunny place in soil sharp and free with grit and stones. Cannot endure winter damp. Alps.

C. carpatica.—A splendid, friendly, floriferous dwarf plant for any part of the garden, making fine border edgings, growing cheerfully in walls, and decorating the rock garden where there is room for its wide leafy tufts. Blooms all summer—white, pale blue, or deep blue-violet gaping bells, borne in wild profusion. Easily raised

from seed and invaluable. Some of the improved forms are very good: Isabel, with large flat blue flowers; Riverslea, also wide and flat and blue; White Star, a very lovely form and especially free flowering. All these seed themselves freely and many charming babies result in all the intermediate tones between white and deep blue. Ten inches.

C. collina.—A form offered in this country of which I have had no experience. It is described as growing a foot tall, with downy scallop-edged leaves and glorious big purple bells in June. It is said to be easy, running about freely in any good loose loam in sunshine. Caucasus.

C. eriocarpa.—A neat, compact form of *C. latifolia* with flowers of a superb purple. Too tall for any save very large rock gardens.

C. fenestrellata.—Akin to *C. garganica.* Offered by Mrs. Wolcott. Have not seen it.

C. garganica.—The most lovely, the most starry, and not too difficult. A small thing from rocky places in Italy that forms a wide tuft a few inches high of small pointed heart-shaped leaves closely set with blue stars in early June. It loves sunshine, a stony soil in which the roots may run about, and it is easily increased by division. There are a number of forms: W. H. Paine, with larger flowers; *erinus,* a neater and more compact form; major, said to be a larger plant altogether.

C. glomerata.—Grows a foot tall and has lax stems carrying clusters of rich purple bells. Handsome, but spreads indiscriminately from the root and is not for the premises of the most choice and fragile. June.

C. Grossekii.—Tall and coarse and only fit for waste places or the wild garden where it makes pleasant colour after the Foxgloves are done.

C. Kolenatiana.—Said to be a beautiful species, very floriferous, and forming a little bush of erect stems a foot or more tall, carrying violet bells. A biennial but seeds freely.

C. lactiflora (*C. celtidifolia*).—A splendid great thing for the ordinary garden.

C. latifolia.—Another invaluable border plant but not for the rock garden.

C. latiloba (*C. grandis*).—Yet another beautiful border species something after the fashion of C. *persicifolia.*

C. longistyla.—A biennial, but such a beauty that none should turn from it on this account. A graceful, foot-tall, bell-hung plant, a source of pride and joy in any garden. Readily raised from seed and may possibly self-sow where happy. Light shade or sun.

C. mirabilis.—A beautiful species from the Caucasus, reputedly difficult; said to require a poor, dry, stony soil, and in this to form flat rosettes sending up a fountain of bell-hung stems—the bells large and pale blue.

C. muralis (*C. Portenschlagiana*).—Next to *C. garganica* the most lovely and friendly of the small sorts. Very dwarf, only a few inches high, and bearing its large violet trumpets all through the summer. Increases into delightful patches in the stony soil, and may be freely increased by pulling apart the tufts. Likes a position where it has the morning sun only—and this is true of most of the small Campanulas. A real delight. Has various forms—all keenly desirable. Late May.

C. patula.—A gay and sprightly biennial, which to see is to love. A slender plant sending up a wand-like stem hung with pink-lavender bells to a height of eighteen inches, from a flat rosette. I knew it for the first time last summer and am hoping it likes the garden well enough to self-sow and thus become a permanent resident.* Seed.

C. persicifolia.—The well-known and loved border plant.

C. pulla.—A precious small glory that I have not. (Mrs. Wolcott has.)

C. pulloides.—Related to it and my especial pride and delight. It is hardy and quite hearty, prowling about in the gravelly soil looking toward the east, forming little low tufts of soft leaves, and in early July surprising itself and me by bursting forth in gorgeous purple bells, wide open and seemingly too big for the little tufts to carry. A treasure for a very favoured spot.

C. pusilla.—In my rock garden a love of a cheery weed, prowling widely among the stones, in sun or partial shade, and hanging out in early June a wild profusion of tiny ash-blue or white bells a few inches above the soil. It is lovely for a ledge, for a crevice, for the joints of steps or for little gravelly slopes in the rock garden. It sometimes flowers itself into a state of weakness and bare stems, and it must then be refreshed and revitalized by a dressing of gritty soil and humus, when it will start its happy rambling anew.

*Has self-sown quite freely in the neighbourhood of the old plants.

C. punctata.—Has not proved permanent in my garden, possibly through lack of understanding of its needs. A slender plant from north Asia; a foot tall with waxen bells spotted inside with pink. Said to require a very light sandy soil in sun.

C. pyramidalis.—The great biennial spire of the borders.

C. Raddeana.—Lovely lax bushy species a foot tall. Desires an open position in good soil. Something like the common Harebell.

C. rapunculoides.—Terrible, insatiable, beautiful. Often to be found by the roadside, glorifying the dusty way with its arching stems of mauve bells. Spreads death and destruction in the rock garden.

C. rotundifolia.—The little Harebell, well known and beloved. For any stony, lightly wooded place or the north side of the rock garden. There are numerous forms, of which *C. Hostii* and *C. Scheuchzeri* are real improvements, the one dwarfer and more compact with larger flowers; the other with frail stems carrying larger, deeper blue bells.

C. sarmatica will have none of me, though it appears from its photographs to be a vigorous, tall form, something after the fashion of *C. rapunculoides.*

C. siberica.—A good tall biennial for sunny, half-wild places.

C. Stansfieldii according to Mr. Farrar is a gift from Heaven with its origin wrapped in cloud. Anyway, it thrives not with me as heartily as some of the other small forms, living and blossoming but not extending as I should like. It forms a low mat of light green leaves and bears rather large and very lovely bells, shallow and wide, each on its own slender stem. July.

C. Tommasiniana.—An exquisite Italian fairy. It is for a choice corner in good but gritty soil where it will send up leafy stems, slender and light, to a height of six or eight inches carrying a string of lovely little bells, pale blue and rather long. One of the loveliest.

C. Trachelium.—A terrible weed. Do not suffer it.

C. turbinata.—Very close to carpatica, but lower growing and grayer of leaf and with larger, flatter blooms. A good and easy plant. June and July.

And this is but a small portion of the delight and beauty that is to be got from the Campanulas. They are of inestimable value in the rock garden, blooming, as they do, in early and midsummer when the great spring display is going over.

CARDAMINE—*C. pratensis fl. pl.*—The double Lady's-smock or Cuckoo-pint is pretty for the woodland path or half-shaded borders, but too tall for the rock garden.

CATANANCHE—*C. coerulea.*—A pleasing little plant that I had a number of years ago but found not hardy in my locality. South of Philadelphia it would prove entirely reliable. The Cupidone belongs to the south of France; it makes flat rosettes and sends up naked stems a foot or more in height bearing bright blue flowers something like Centaureas. Sunshine and a dry, rather poor soil.

CENTRANTHUS—*C. ruber.*—The Valerian seen hanging in festoons from old walls in England. Fine for walls here. Easily raised from seed. Biennial.

CERASTIUM.—These mantling, blanketing plants are useful and beautiful as well as excessively dangerous. The Chickweed is one of them, and *C. arvense,* though it is a lovely soft grayish creeping thing, losing itself in a cloud of white blossoms in May, has to a great degree the manners and morals of the Chickweed—most vicious and ineradicable of weeds. Do not let *C. arvense* within a hundred yards of the rock garden. Keep it to flow over stones and rough banks in out-of-the-way places, or to wreathe the hard outlines of stone steps. Once in the rock garden it is not to be thrust out.

C. tomentosum and *C. Biebersteinii* are less deadly, but they spread a thick gray blanket that will smother any lesser things that lie in their path. They are for rough places in the rock garden, or for edgings to ordinary borders.

CERATOSTIGMA—*C. plumbaginoides.*—Once known as *Plumbago Larpentae,* this lovely Chinese plant is of supreme value in the late summer and autumn rock garden—that season when the small hills and dales are apt to be devoid of brilliant colour. It requires the hottest and dryest situations and will there run about in the stony soil making pleasant verdure, and as the cool nights begin, send up masses of Gentian-blue blossoms with mahogany bracts in a way to astonish and delight any audience. I had a mass of it last fall growing against a curtain of *Artemisia canadensis*—a silvery mist—and the association was most pleasing. It starts growth very late in spring, and therefore is often considered killed out by winter. Have patience.

CHEIRANTHUS—*C. Allioni.*—A splendid and easy plant for the garden or the rock garden, growing eighteen inches tall and bear-

ing for a long period in spring and summer masses of orange-coloured Wallflowers, scented and brilliant. It is a biennial but so easily raised from seed that it may always be kept on hand, and where allowed it will self-sow freely. It begins to bloom with the early Tulips and with scarlet and white ones makes a most splendid display. A plant to use lavishly.

C. alpinus (*Erysimum ochroleucum*).—An attractive, perfectly hardy Wallflower forming squat cushions of narrow leaves and sending up leafy stems crowned by fragrant bright yellow flowers for a very long period. Comes readily from seed and revels in a light soil and full sunshine. A good and easy plant.

C. linifolius (*Erysimum linifolium*).—An extremely attractive plant, forming a little dusty bush a foot or more tall with narrow leaves and innumerable spikes of small pure lavender blossoms all the summer long. From the hot cliffs of Portugal it requires the sunniest and most sheltered positions, in thin, gritty soil, and then may not weather the winter. In my locality I have not been able to carry it over the winter save in a frame.

C. mutabilis from the Canary Islands is not hardy with me, nor is *C. Kewensis*.

CHELIDONIUM, the Great Celandine, a handsome weed that should not find a place in the rock garden.

CHIMAPHILA, a race of most alluring plants that must be sought in woodland places. Some of the most lovely are our own, growing both in the West and in the East. They require a vegetable soil—rotted leaves and pine needles—and of course shade.

C. maculata, the Spotted Wintergreen, is often found in Pine forests, its thick dark leaves, mottled white along the mid-rib, flat on the ground, from whose midst arise the five-inch stems carrying a loose head of five or six waxen, nodding white flowers that are very fragrant.

C. umbellata, known to its lovers as Prince's Pine or by its musical old Indian name, Pipsissewa, is taller growing with saw-toothed, shining leaves, thick and leathery, the waxen blossoms palest pink with purple anthers. Six to ten inches.

CHIONOPHILA—*C. Jamesii*.—Small Colorado alpine, related to the Pentstemons that I have not yet been able to get. Forms neat tufts of foliage and sends up slender stems carrying creamy flowers. Who has it?

CHRYSANTHEMUM—*C. arcticum.*—There are numerous small Chrysanthemums suitable for the rock garden but this is the only one I have seen. I had it for a time and saw its tuft of shining foliage but never its mass of white lilac-tinged Daisies, for it went off in a wet spell. Mrs. Wolcott says it is very hardy.

CHRYSOGONUM—*C. virginianum.*—A native plant, rather coarse, but bearing masses of bright yellow flowers all through the summer. Not good enough for the rock garden.

CLAYTONIA.—All wanderers in the spring woods are familiar with the dainty Spring Beauty, *C. virginica.* It is no trouble at all to naturalize it on the rock garden, and if not watched will make of itself a charming pest. There are numerous Western Claytonias that we should have.

CLINTONIA.—*C. borealis* is an attractive native woodland plant that requires a vegetable soil and shade for its happiness. Sends up two broad leaves between which arise the erect stem to a height of six inches carrying the greenish-yellow Lily-like flowers in early spring. Must have cool conditions. *C. umbellulata* is also desirable. The flowers are white.

COGGSWELLIA.—*C. montana* (Wild Celery) is a curious dwarf plant that came to me from friends in the Northwest. It is low and rather frail and bears heads of tiny white or yellow flowers. It has not prospered conspicuously and I think requires dryer and more barren conditions than I have assigned it, but it has wintered safely.

CONVOLVULUS.—*C. incanus* is a delightful little plant forming a dense tuft of longish gray leaves among which appear in early June lovely vase-like blossoms of palest pink. Mr. Farrar calls it a gem of ray serene. Should have a warm sunny spot in sandy soil.

C. mauritanicus is offered by Mr. Purdy, but would not be hardy in this locality. Lovely for Southern gardens. It flings itself about over rocks and bears large blossoms of a clear lilac-blue. Hot, dry situation.

COREOPSIS.—*C. rosea* is the only member of this race to be admitted to the rock garden. A slight little native, growing wild, according to the "Cyclopedia of American Horticulture," from Massachusetts to Georgia. It blooms in summer, likes a cool place in gritty soil, and is rather pretty. Slender stems to a height of eight inches and little pink Daisies.

CORNUS—*C. canadensis.*—This minute Dogwood belongs in cool

woods and copses in deep vegetable soil. Found often in Pine woods where it clothes the ground in low green verdure starred in spring with large white blossoms, followed by scarlet fruit. Difficult to establish unless the conditions are right.

CORONILLA—*C. iberica* (*C. cappadocica*).—The only one of this family I have grown. It is hardy and makes a broad mat of leaves and in summer gives innumerable heads of golden pea-shaped flowers, fragrant and beautiful. The leaves are slightly glaucous. *C. glauca* and *C. montana* are said to be desirable. These plants may be raised from seed. Avoid *C. varia* at all costs. It is a virulent pest.

CORYDALIS.—A race of well beloveds; all graceful, ferny, cool, and charmingly amiable so far as my experience of them goes. Easily raised from seed, invaluable in dry shady places or in sun; hardy; beautiful.

C. bulbosa (close to or identical with *C. cava*).—A little low ferny thing growing from a hollow bulb and dying down quite after it has flowered. Above its fragile ferns it waves sprays of pinky-lilac in late March and April. Will spread and prosper anywhere on the rock garden and is a love.

C. cheilanthifolia.—A fine, upstanding plant, growing a rich tuft of dark green fern-like leaves of value anywhere in the garden. In early April erect stems threaded with yellow flowers appear to a height of eight or ten inches. This is a Chinese plant, choice and beautiful in appearance, but hardy and easy to please. In my garden it self-sows freely. Difficult to transplant but easily raised from seed, and the seedlings may be handled without danger. Miss Jekyll speaks of this as a good wall plant.

C. glauca (*Capnoides sempervirens*).—A small native annual or biennial growing on wooded, rocky hillsides. Its tuft of lovely gray leaves is more desirable than its wiry stem of small pink yellow-tipped blossoms. Sows itself freely in sun or shade.

C. lutea.—A treasure of treasures for any unconsidered place in sun or shade; for dry walls, for the joints of steps, for stony banks, this small engaging ramper is invaluable; indeed, there is no part of my garden where it is not welcome save in the neighbourhoods of my choicest small treasures. It is never out of golden flowers from spring until winter and its fragile ferny foliage is a delight everywhere. Self-sows freely and in the most discriminating and charming way—and if it winter-kills there are always plenty of lively seed-

lings. The white form is lovely and rather rare. It is also less floriferous.

C. nobilis.—Rather large for the rock garden but a noble plant, indeed, making a splendid tuft of fern-like foliage from the midst of which spring many spikes of yellow flowers, fragrant, curiously papery to the touch, and with black tips. Dies down after flowering. Siberia.

C. ochroleuca.—A foot tall, ferny, and producing its creamy flowers all summer. Lovely and desirable.

C. thalictrifolia.—With foliage like a Meadow Rue but rather heavier in texture. It is a new sort from China and has proved hardy over this first winter in my garden, but has a reputation for tenderness.

C. Wilsonii.—Another Chinese plant of recent introduction, lovely in its fine, delicate gray-green leafage, and hardy. I have not seen it blossom, but it is said to bear spikes of bright yellow flowers all summer. Eight inches. Desires a sheltered spot.

CYPRIPEDIUM.—An exquisite race of Orchids, many of which are among our most precious wild flowers. They are shy and difficult to grow unless conditions are exactly right for them, and are such rare and beautiful things that their culture should not be undertaken without thorough and adequate preparation. See chapter on "Soil" for conditions necessary to their health and safety.

C. Acaule.—The lovely and appealing pink Moccasin Flower, or Lady's-slipper to be known by its two large, broad, grooved leaves between which aspires the stem carrying its single hooded flower, mysterious and exquisite. It is found most often haunting lonely Pine forests, in soil loose, fibrous, open, and always highly acid. It is the largest of our Orchids. I know where it grows thickly but I'll never tell.

C. candidum is a rare white-flowered Eastern form, and there are numerous beautiful Westerners of the race which open up vistas of loveliness before us when it shall be made possible for us to secure them.

C. hirsutum (*C. reginae, C. spectabilis*).—Words are inadequate to describe this most beautiful of our Orchids. Suffice it to say that it is tall, attaining a height of two feet, displays two or three rounded leaves along its stem and then one or more exquisite blossoms, white or faintly tinged with lilac pink. This is a bog plant but will grow in fibrous leaf-soil in low, moist parts of the rock garden.

C. parviflorum (Small Yellow Lady's-slipper or Whip-poor-will's shoe).—This and its variety, *C. pubescens*, with larger flowers, are more readily pleased in the garden than the foregoing royalties. A rich vegetable soil and shade among rocks where the earth will not become parched.

CYTISUS. (See *Genista*).

DALIBARDA.—*D. repens*.—A difficult native plant, low and of creeping habit with round downy leaves and flowers like small strawberry blossoms. Native of damp woods, flowering in June.

DELPHINIUM.—Not usually regarded as a race suitable for the rock garden, but some of the native American species might fittingly find a place there, as well as the small *D. chinensis*, with its charming varieties, Blue Butterfly and Azure Fairy. For dry sunny places.

Of the Western species I have raised from seed, *D. elongatum*, a beautiful form with clouded blue blossoms, blooming with the Bearded Irises, and a delightful accompaniment for them. In a dry soil and sunshine the plants grow about two feet tall and are most graceful. Perfectly hardy. *D. Geyeri*, also hardy and of lesser stature with gray foliage and less striking blossoms. Dry soil. *D. Penhardii*, dwarf and white flowered, I lost my stock of before it bloomed, through an evil accident. We should also be able to get *D. bicolor*, said to be dwarf. My seeds came from Mr. Andrews. I consider *D. elongatum* a real find.

D. nudicaule, the Scarlet Larkspur, a Californian, I also lost through the same evil accident, but Mr. Purdy can supply the plants, and possibly the seeds, which germinate readily. Wants a well-drained spot in sun and, I suspect, protection in winter.

DIANTHUS.—Of all the races of mountain plants that of the Pinks is the most rewarding and gracious. Not only have they beauty and sweetness in a high degree, but while having all the outward characteristics of the most chaste and aloof high alpines, many of them are as friendly and cheerful as Rock Cress or Alyssum, and will grow as brilliantly and joyously in lowland gardens as in the high places whence they come. From such kinds as *arenarius, caesius, deltoides, suavis, superbus*, the beginner should receive his first taste of the delights of growing mountain plants. He would never turn back after knowing them. There are, of course, difficult kinds among the Pinks, but for the most part they are easy to please, wanting only a well-drained soil and all the sunshine that may be given them,

hating winter damp, loving summer heat. There is great variety among them, in colour, form, and habit, and they all come easily from seed, germinating most expeditiously, but they intermarry so readily that one does not always get the species true by this means. No Pink, however, comes amiss. All are dear and desirable.

D. alpinus.—This has for me always been one of the difficult kinds, though Mr. Cleveland Morgan grows it in broad patches many feet across in his Canadian garden, apparently with no trouble at all. It is perhaps the most spectacular of all the Pinks—quite obliterating its close dark shining mat of small blunt leaves with the abundance of its huge round pink blossoms on stems two or three inches tall. Undoubtedly *alpinus* is unable to endure damp, whether of winter or summer, and must have a well-drained situation, but not, say those who succeed with it, one where the sun strikes upon it all day long. It is one of the plants, I am told, that requires an abundance of lime in its soil, and this is where I have, probably, fallen short in my treatment of it. Last summer I had a magnificent display, but the plants damped off during a wet spell in the late summer and are now but ghosts of their former selves. Its beauty is ample reward for any trouble. One can but experiment and hope.

D. arenarius, on the other hand, is a certain reward for no trouble at all. Its low mat of very narrow foliage spreads with gratifying speed and its tousled blossoms, white or blush, fringy and sweet and plenty, are offered in exchange for a glance. *D. arenarius* loves to hang from the chink of a wall, but is happy in almost any position, and I have one plant that is growing at the edge of the rock garden in partial shade that seems as content as its sisters in sunnier situations.

D. Armeria, the Deptford Pink, a little weedy annual or biennial that runs wild in many localities along the roadsides. Not good enough for cultivation.

D. atrorubens.—A good and friendly sort growing nine inches tall and bushy, and bearing many rather large crimson blossoms, rich and satiny, in clusters. Its leaves are green and thin in texture and any sunny place on the rock garden will suit it. Armenia.

D. brevicaulis.—This is a good little treasure forming a very tight mat of narrow dusty-looking foliage upon which the large, almost stemless blossoms, lilac-pink in colour, sit and sun themselves. Wants a warm chink.

D. caesius, the Cheddar Pink, is one of the joys of the race, its ample tufts of gray narrow leaves pleasing to the eye at all seasons, its explosions of rose-pink fringed, spice-scented blossoms a cause for unceasing gratitude. Craves a high place and dry, where it can hang in luxuriant wads and curtains in the most unrestricted sunshine. Good for a south wall, or any dry, hot place on the rock garden.

D. callizonus.—This plant is called by Mr. Farrar incomparably the loveliest of alpine Pinks, and indeed it is a rare beauty, with great round blossoms, startling in their size and brilliance, with a zone of Persian embroidery in the centre. It is considered one of the most difficult varieties, but I must have hit by pure chance upon the sum of its desires, for my one plant—sole product of a packet of seed—is in a most flourishing condition and at this moment set all over with its great pink moons. It is on the north side of a sheltering rock in the free, gritty soil of the rock garden.

D. Carthusianorum.—A big, easy cluster-headed Pink, with tall lank stems and red-crimson blossoms, small and scentless. Not choice. There are a good many of these cluster-headed Pinks, none of which are worth giving much space, if any.

D. cruentus might be allowed in a place not required for its betters. They all self-sow with freedom and are apt to become a nuisance.

D. deltoides (the Maiden Pink).—Easiest and friendliest of all, running about in luxuriant close mats of dark, shining small leaves, bursting into riotous rosy bloom, sowing its seed expansively, and making of itself generally a charming companion—but *not* for the choicest situations among the small sensitive creatures whose inhibitions and restraints it would neither understand nor heed. A fine plant for border edges, for paved paths, for unconsidered places on the rock garden. Besides the crimson form there is a very pretty white variety with a crimson circle and many little pink freckles. Of this same type is *graniticus*, as well as *caucasicus* and *montanus*. All good and easy but no better than *deltoides*.

D. dentosus.—This is a Russian and a special favourite, with lax, long gray shoots that like to lie upon a hot rock, and large, round bright crimson velvet blossoms with a centre of Persian embroidery. Scentless.

D. Falconeri.—Have never been able to get the true plant.

D. fimbriatus.—The plant I possess under this name makes a mass

of gray-green foliage and bears many very fringy, sweet-scented white blossoms.

D. Freynii.—Still a far vision.

D. gallicus.—A wildly ramping Pink, throwing itself all over the place to the destruction of all in its way. It grows a foot tall and bears innumerable weak magenta blossoms, sweet-scented, and is with me the last of the race to flower. Likes sun and a sandy soil but is only fit for rough portions of the rock work. Blooms all summer and autumn.

D. gelidius.—Have a plant under this name—sole survivor from a packet of seed—but cannot report upon it as yet, save to say that it makes a tight little tuft of narrow leaves and has come safely through its first winter, none the worse for its rigours.

D. glacialis.—Mrs. Wolcott reports this plant as amiable in her garden. It has never been so with me, resisting my most ingratiating advances and callously passing into the beyond under my imploring gaze. I refer you to Mrs. Wolcott.

D. graniticus (See *D. deltoides*).

D. integar.—Do not feel sure of this species as I have had it. A tight neat tuft of very narrow leaves giving forth small white single Pinks on stems five inches long. Very pretty and wants a sunny nook.

D. Knappii.—Have not grown and should not like a yellow Pink.

D. microlepis.—A tiny lovely high alpine that must be given a choice crevice and watched over lovingly. Not one of the easy kinds but very lovely. Makes a small tight tuft of green-gray wide leaves and bears close to the tuft charming blossoms of pink or white.

D. monspessulanus.—A beautiful hoydenish thing, with tall grassy foliage and slender stems carrying several very large, fragrant, fringy lilac-pink blossoms at the end of May. It is a tall, free-growing sort—albeit with me short-lived—and no company for the small treasures of its own or any race.

D. neglectus.—Perhaps the loveliest, the most generous, the most desirable. Makes the neatest, tightest tufts of narrow dark leaves from which burst on stems a few inches tall veritable explosions of pink blossoms, pale yellow on the reverse side. It craves a well-drained ledge with sun for but part of the day—the morning sun preferred. Not of the easiest, but to be won.

D. nitidus.—Sounds keenly desirable, but have not grown it.

D. petraeus.—A friendly sort with a rambling mat of short, stiff, very narrow leaves and pink or white scalloped blossoms.

D. plumarius.—The charming Pinks of the garden borders that need neither introduction nor praise.

D. Prichardii.—A tiny, restrained deltoides with fiery-crimson, round blossoms. A very good sort for a stony sunny slope. I suspect this of being the same plant now offered as *D. pyridicola,* as *D. Prichardii* has disappeared from catalogues and *D. pyridicola* has appeared with a description that is identical.

D. pyridicola.—See above.

D. Seguieri.—A tall, leafy sort growing in sun or partial shade, and bearing large single pure magenta flowers late in July. A good kind for a not too choice situation.

D. suavis.—Beautiful, easy Pink much like D. *caesius,* with ample gray tufts, neat and compact, and masses of sweet-scented pure pink blossoms with toothed edges. For sunny borders, walls, or the rock garden.

D. subacaulis.—Have a charming little variety under this name, small and close and with many small bright pink blossoms, but think it is not true.

D. superbus.—A most beautiful biennial or short-lived species; tall, with great ragged, fringy, scented flowers, white or faint lilac, on lax leafy stems, all through the summer.

D. sylvestris.—One of the elect. Lovely, free, easy, desiring only the hottest and sunniest places in soil that is open but not too poor. Makes a tuft of the very narrowest, needle-like leaves and bursts into a fountain of salmon-pink bloom in June. *D. frigidus* is a form of this.

DICENTRA.—*D. formosa* (the Western Bleeding-heart) is a good plant for both border and rock garden. Spreading into wide mats of ferny foliage and bearing spikes of pink hearts through the greater part of the summer.

D. eximia has pinker blossoms and grows a little taller—about twelve inches. Sun or half shade.

D. canadensis is the native Squirrel Corn, a quaint, pink-flowered, fragile-appearing thing for a cool corner.

D. cucullaria, the little Dutchman's-breeches, now called *Bicuculla cucullaria,* is a choice delight for a woodsy corner in loose and fibrous

leaf soil. Not always easy to establish, though growing most freely in a wild state in such localities as it elects to grace.

DIGITALIS.—*D. purpurea* is too large for the rock garden, but no plants are more effective and in keeping with its spirit when grown near by than the Foxgloves.

D. ambigua (*D. grandiflora*), however, with a compact green rosette and spikes of pale yellow blooms may be admitted to the rougher parts. It is a good perennial and most easily raised from seed.

DODECATHEON.—The Shooting Stars are beautiful and interesting American plants, found in the West and Middle West. I have a number of forms from different localities but have never got their exact identities straightened out. They form rosettes of smooth green leaves and send up stems, some shorter, some longer, ending in a burst of realistic shooting stars, pink, white, or mauve. They are of the early summer, late May and June, and for the most part enjoy dampish places or partial shade in good fibrous, gritty soil. There are some very choice small kinds to be had of the West if we keep asking for them. All die down after the seeds mature.

DORONICUM.—Big handsome golden Daisies from tufts of large coarse leaves for the rougher parts of the rock garden.

DRABA.—A vast, widely distributed race of small, creeping plants, bearing for the most part yellow flowers in great profusion. They love to creep about among stones in sunny open places, are not difficult to grow, and may be readily raised from seed. Have not got very far among them but all the following are worth growing.

D. aizoides.—A well-known and useful species forming mats of little green hairy rosettes, each sending up a three-inch stem bearing a head of small golden flowers. Grows well on a stony plateau in sun.

D. Athoa.—A Greek species with which I have not yet made acquaintance "Spiny foliage, forming close mats which are covered in spring with yellow blossoms on stems three inches high."

D. bruniaefolia (*D. olympica*).—A variable species; neat, and making a broad mat of minute, narrow-leaved tufts, with masses of yellow flowers on two-inch stems. Has numerous forms.

D. cuspidata makes tiny dense rosettes, soft and downy, over which wave in early spring the characteristic heads of tiny yellow flowers.

D. Dedeana, a Spanish species running into a dense, close mass of bright green little tufts with masses of white flowers, yellow-eyed, on stems less than two inches high.

D. flatnitzensis (*A. androsacea?*).—Under this name I have a nice form that runs about freely in tiny green tufts and seems very hardy and easy. It has small white flowers in great profusion.

D. lasiocarpa.—Unknown to me. See Mrs. Wolcott.

D. repens.—A cheerful little plant that flings itself about close to the ground making a running tangle of stems and leaves and yellow flowers in April. Easy in any sunny spot. Caucasus.

The West is rich in Drabas could we but get at them. There are doubtless many unfit for garden purposes, but in studying pictures and reading of them the following would seem to have possibilities: *D. cheiranthes,* from the Sierra Nevadas; *D. chrysantha* from New Mexico; *D. aurea,* lower levels of the Rockies; *D. nivalis,* alpine summits of the Rockies; *D. andina,* summits of the Rockies. When will our own alpines be at our disposal? Who will seek them out and give them for the glorification of our gardens?

DRACOCEPHALUM.—Some of the Dragon's Heads are small and neat enough to grow upon the rock garden. Among these are *D. austriacum, D. botryoides; D. nutans alpinum.* They like a shaded position where the soil is not too damp.

DRYAS.—A small race of shrubby spreading plants for the rock garden of the first beauty and excellence. It is said that they are easily raised from seed, and increased by means of cuttings or layers. They grow well in any free, open, sandy soil, forming luxuriant mats of leafy branches. They love sunshine and like occasionally to be top-dressed with sandy soil. Do not require division.

D. Drummondii grows in the Canadian Rockies, forming broad mats in the stony, gravelly soil, the branches woody, the stems four or five inches tall, from which depend solitary yellow blossoms that never open widely.

D. octopetala is like it in growth but bears the most lovely large creamy white blossoms with a mass of golden stamens in the late spring. Grows in our Rockies, but it is as scarce in America as if it haunted only the farthest Andean peaks. It is at home, according to Mr. Farrar, over all the alpine chains and is of the greatest antiquity. Both these plants are easy to grow in exposed situations, in gravelly soil. *D. Sundermanii* has been especially free and lovely here.

D. Sundermanii is a hybrid between the two foregoing with creamier blossoms, and quite as lovely.

D. lanata is a dwarfer sort that may now be had in this country, having foliage covered with soft grayish down.

EPIGAEA.—*E. repens,* our lovely Trailing Arbutus, that has proved so difficult to grow under cultivation but thrives in widely differing situations in a wild state. Its place is in the acid soil bed (see Chapter on Soils), and there, given a little time to establish itself, will grow and flower with enthusiasm. One of the earliest and certainly the sweetest flower of the spring.

EPILOBIUM.—Most of this race are weeds or rampant border plants that should not be allowed to approach the sacred environs of the rock garden. There are a few dwarf sorts said to be admissible but I have seen only *E. nummularifolium,* of creeping, prostrate habit, making a close covering of tiny leaves and said to bear pink flowers. But though my mats of it have spread far and wide there has been no sign of flowers. It appears to grow anywhere, but is not good enough to take a position where something lovely might grow. Ground-cover for bulbs.

EPIMEDIUM.—Plants that win an honoured place by the sheer beauty of their leaves, for the waxen flowers, though pretty enough, are too small to be of conspicuous value. They endow shady nooks and corners with a quiet charm and interest that bears the closest inspection from their first springing until they sink to rest in the autumn. They are not nearly as much used as they deserve to be, and need not be confined to the rock garden, but are for any shaded borders or banks, or the edges of woodsy places. They grow about a foot tall and the various varieties and species do not differ greatly. Mr. Farr offers a good selection.

ERANTHIS.—*E. hyemalis.*—The quaint little Winter Aconite that opens its yellow Buttercups with the Snowdrops above its whorl of shining leaves. Loves a shaded corner in leaf-soil. It is so scarce among us now that its place is among the cherished on the rock garden, though it was in better times used to naturalize widely in grassy places beneath trees. Truly are we fallen upon evil days. Grows from a hardy little tuber. Three to six inches. March.

ERIGERON.—These are close kin to the wild Asters but lack a certain crisp ruggedness of appearance which is attractive in the latter. The Fleabanes are soft all through and flaccid, downy with short, soft hairs, and seem to me altogether rather weedy and unrefined. In Mr. Farrar's "English Rock Garden" he gives a long list

of Erigerons, chiefly American, many of which he praises highly, particularly some very dwarf sorts from high mountain regions. These, namely, *E. argenteus* or *E. Wyomingio*, from Colorado, Utah, and Nevada; *E. glandulosus*, Wyoming; *E. leiomeris* from the alps of Utah and Wyoming; *E. luteus*, from shady banks of the Yellowstone, and numerous others, are not yet known to American gardens, nor to the trade, so far as I have been able to find out. That we should have them is undoubtedly a fact. The Fleabanes are easily raised from seed and such as are now at our disposal will grow anywhere in sunshine.

E. Coulteri.—From the Rockies. Soft, hairy, leafy, fifteen inches tall with pale Asters undecided whether to be white or mauve.

E. glabellus.—Six to twenty inches. Violet flowers.

E. glaucus.—Beach Aster of the Pacific Coast. Fairly dwarf and very floriferous.

E. mucronatus (See *Vittadinia triloba*).

E. multiradiatus roseus—Have a bed full of these in the nursery that came through the winter without protection of any sort. Said to be very dwarf and pretty with a profusion of pink Asters.*

Other forms are, *E. alpinus, E. aurantiacus, E. elatior, E. grandiflorus, E. caucasicus,* etc.

ERINUS—*E. alpinus.*—A charming flower of the early spring which I have some trouble in detaining over the winter, save when the snow lies long and deep. It grows a few inches tall, making hummocks of tiny leafage spangled over with rosy flowers in early April. It is easily raised from seed and the lovely white-flowered form comes true. It self-sows freely, and in lucky seasons the gypsy seedlings will live through and greet the spring from many a crack and corner. Must be given very well-drained situations in either sun or partial shade. Lovely for dry walls or the joints of stone steps in sun. Suffers from late spring frosts.

ERODIUM (See Chapter VIII).—Species suitable for the rock garden, and hardy in the neighbourhood of N. Y.; *E. cheilanthifolium, E. chrysanthum, E. daucoides, E. Guicciardi, E. macradenum, E. Manescavi, E. romanum, E. supracanum, E. trichomaneifolium.* All lovely and choice.

ERYSIMUM—*E. Allionii* (See *Cheiranthus*).

E. linifolium (See *Cheiranthus*).

*Have proved of small value.

E. ochroleucum (See *Cheiranthus alpinus*).

E. pulchellum.—Also called *Cheiranthus rupestris.* Makes a low mat of toothed leaves and bears in April masses of yellow mustard-like blossoms, sweet scented, on stems six to eight inches tall. It is easy and pretty in any sunny, well-drained spot. Readily raised from seed and is valuable in the early display. Purple Violas are a nice accompaniment to its rather acid tone of yellow.

E. pumilum is also a charming kind, making low mats covered with blossoms of a paler and better yellow, and in broader heads.

E. purpureum.—A species as yet untried in my garden but said to be of great charm. It is low, sometimes procumbent, somewhat shrubby, and bears flowers of a lovely tone of purple.

EUPHORBIA.—Very few of the Spurges may be given a place on the rock garden, and then only in a cautious spirit, for some are the most devastating spreaders though appearing innocent and conservative. None of them are beautiful, but some are interesting and may be used for out-of-the-way corners.

E. Cyparissias.—Do not suffer it (See Chapter XI).

E. myrsinites.—A fat-leaved, gray semi-trailer for a hot, dry corner, with heads of green-yellow flowers terminating the lax, ten-inch branches. It is from Corsica, but perfectly hardy and self-sows in my garden.

E. polychroma grows upright to the height of a foot and forms a handsome bush with yellow flowers in April or early May. A good plant for a bold position in sunshine.

FESTUCA—*F. glauca.*—Perhaps grasses are not "proper" to associate with the rock plants and alpines, but the gray-blue tufts of the Blue Fescue are quite pretty enough for dry sunny corners in the rougher neighbourhoods.

FUNKIA—*F. minor* (Hosta).—This is a charming miniature replica of the lovely old White Corfu Lily. It is the only one of its family small enough for the rock garden, and may be used in situations where the soil is deep and rich in either sun or partial shade. Grows about eight inches tall with me. Valuable for its late bloom. (Elizabeth Nursery.)

GALAX—*G. aphylla,* the Wandflower of our Southern mountains, should have a place on the cool shaded side of the rock garden or in any woodsy places where the soil is cool and deep and never very dry. It is a beautiful plant with shining evergreen foliage, reddish

in the autumn, and wandlike stems a foot or more high bearing many small white flowers, light and fluffy in effect. Perfectly hardy, and spreads by means of underground runners when happily situated.

Gaultheria—*G. procumbens*, the Aromatic Wintergreen, is another native, a low evergreen, only a few inches tall, with dark, thick shining leaves, and small white blossoms that are followed by red berries that remain in good condition throughout the winter. Where it grows naturally it forms broad carpets of shining green beneath the forest trees but it is difficult to establish in cultivation, and should not be attempted unless its necessities are understood. (See chapter on soils.)

GENISTA.—A large genus many of whose members are too large for the rock garden, but providing also numerous little low shrubby plants for our hot sunny slopes. If you are unable to buy plants in this country they may be easily raised from seed and they should most surely be possessed, for they are delightfully gay and easy in a sunny place in dry, rather poor soil.

G. Boissieri sounds a fascinating little bush and we should be able to enjoy it, for it is reported an inhabitant of our own Sierra Nevadas. Can find no mention of it in any book on American plants so far.

G. dalmatica.—A charming fuzzy little prostrate shrub with bright yellow pea-shaped flowers in early June.

G. humifusa (*Cytisus diffusus*).—Prostrate, its little slender branches held close to the ground, the oval leaves in pairs and the gay golden flowers borne in short spikes.

G. pilosa, for very dry, gravelly places in sun. Dense and prostrate with yellow flowers borne very freely in summer. Fine.

G. prostrata (*Cytisus procumbens*).—Six-inch trailer with a profusion of bright yellow flowers in early May and a lesser show in the autumn. Very nice for a dry hot situation.

G. sagittalis.—A prostrate plant with curious winged stems and yellow flowers in early summer.

GENTIANA.—I hesitate to venture into the august presence of the Gentians, for my acquaintance with them is slight and has sometimes been disastrous—to the Gentians. As a race the Gentians are all more or less difficult to manage under cultivation. To quote Mr. Farrar, "Gentiana offers the rock garden more glory than any other race, and more persistently denies it." And in this country we are at a great disadvantage in our efforts to learn something of their

nature and requirements because of the impossibility of securing plants to study at first hand. Although our country is rich in rare and beautiful species of Gentiana they are as yet not within our reach and, while we may get seed of the foreign sorts, raising Gentians from seed is so slow and careful an enterprise that it is not readily undertaken. In Mr. Lown's treasure-garden I have seen various of the majesties enthroned and smiling—*G. acaulis* running into entirely unbelievable and improbable lush green mats; *G. verna* cheerful and thriving, and others of the most difficult and lovely bearing their fiercely flaming blue blossoms in a manner to stir the depths of one's gardening soul to reverence and rapture. But for us smaller folk who feel our way, the great race offers a knotty problem. They are a widely distributed family, inhabiting mountain heights and valleys, woods and meadows and plains, sandy barrens and bogs, some tall, some compact and low, many beautiful and desirable for the rock garden and its environs. What follows is the merest jotting down of notes, hopes, and fears with a very few facts.

G. acaulis has sat in my garden for three summers without so much as a hint at blossoming. Last summer it leisurely increased itself by a rosette or two, those already in residence maintaining their sphinx-like immobility. To-day I lifted the Hemlock boughs that have sheltered the little colony all winter and my heart gave a sort of leap, for it seemed to me that the dark, inscrutable little clumps had a certain look of action about them, a vivid, aroused look that they had not before possessed. This may be merely the age-old optimism of the vernal season, but my thistledown hopes are flying high. It is said that the beautiful Gentianella demands *richness*—old rotted manure, rotted leaves, good food of any sort dug in generous quantities into the good loam it prefers, with lime added. It demands sunshine also, full and free, and a plentiful supply of moisture in dry weather. I have failed in some of these matters—notably in the richness of the soil—one hesitates to serve up much manure to an alpine, and this is probably the cause of their sulks in my garden.*

G. Andrewsii is the familiar Closed Gentian of our Eastern countryside. It is a tall sort but beautiful for low ground near the rock garden or beside the pool. Likes a rich, deep vegetable soil that is not

*Mr. Lown tells me that in his garden *G. acaulis* flowers well only when in rather poor soil.

too dry. The blending of blue and green in the sealed blossoms is very beautiful. Its stem rises to a height of eighteen inches.

G. asclepiadea (the Willow Gentian).—A tall-growing deciduous sort reaching a height of three feet with numerous dark blue blossoms. Said to be easy to grow in good deep loam, in sunshine.

G. calycosa.—Mr. Purdy sent me last summer a few roots of this species from the summits of California mountains. It is alive but plainly not enthusiastic over its change of domicile and I shall doubtless lose it. It is said to grow a foot tall and to bear a solitary bell-like flower, deep blue in colour, late in the summer.

G. crinita.—Our heavenly Fringed Gentian that no man can tame. Happily I once dwelt in a neighbourhood where Fringed Gentians were as plentiful in the autumn as Buttercups in the summer, growing on the bare hills among the short grass between the gypsy Cedars, bluing the low damp meadows, lining the roadsides. One autumn in visiting what we called the Gentian Meadow—a high-flung rocky pasture where Cedars and wild Thorns congregate, and Lady's-tresses and the little stiff *Aster liniariifolius* and Gentians grow thickly on the ground—we found to our amazement among the blue Gentians many pure white ones, as if the ghosts of all the Gentian hosts that had played in that high, remote pasture had returned to frolic with the living. It was a wonderful sight never before seen in the twelve years of our visits to the meadow, nor in the two years following that we remained in the neighbourhood. There were besides the white ones pale blue ones—the colour of skimmed milk—and all of a loveliness that savoured not of this world. Such experiences do not come to one more than once, perhaps, in a lifetime. How grateful should we be that they come at all.

G. cruciata.—Offered by Mrs. Wolcott. Said to be common in low, warm places of the Alps, growing in the turfy loam, and to be easy in any sunny garden. Blooms in August and September bearing clusters of blossoms, bright blue, on stems a foot tall. Have this up from seed.

G. ochroleuca.—A clump of this species grows in my garden. It came from the neighbourhood of Washington, D. C. It bears a rather unattractive whitish blossom, but because it is a Gentian and thrives and blooms I can but adore it.

G. Porphyrio.—This is the Pine Barren Gentian that haunts remote localities of the New Jersey barrens. It is said to be a beauty

with a flaring mouth, bright blue as to colour with delicate markings within. There is a beautiful and rare albino. Could we not at least have seed of this fine native?

G. septemfida.—A plant of this species dwells in my garden, prayed over and coddled to the best of my poor abilities. It is alive this spring and I look forward with hope to its possible blossoming in the late summer. We are directed to give *septemfida* a "good sound soil of peat and loam, in a comfortable place not parched or stagnant," where we are told it will prove amiable and responsive, opening large, lovely soft blue blossoms on stems six or eight inches tall.

G. verna.—One of the small and exquisite gems of the race. If you can procure a piece by hook or by crook, you will have to read many books to find out what to do with it, for few of them agree, their authors being unanimous only in thinking it the most lovely and desirable of all.

GERANIUM.—(See Chapter VIII.) Species suitable for the rock garden: *argenteum, cinereum, Fremontii, grandiflorum, sanguineum* and *sanguineum lancastriense, sessiliflorum, Endressii, Traversii, Wallichianum.*

GEUM.—Plants with brilliant flowers a few of which may be grown in the rock garden. May be readily raised from seed. Ordinary soil and sunshine.

G. Borisii is a Bulgarian plant making a handsome evergreen mat of leaves and producing bright yellow blossoms on six-inch stems. Grows into a sturdy plant from seed the first year and is perfectly hardy.

G. bulgaricum.—New and promises to be valuable. Said to bear large orange-yellow flowers in summer.

G. montanum makes ample mats of foliage, low and tufted, and bears on short stems many golden blossoms in spring. A beautiful sort and easy.

G. pyrenaicum is said to be a good deal like it but taller.

G. reptans likes a dry position in sunshine. It is a valuable and attractive rock plant. The blossoms are large and pale yellow and the plant is low, forming tight wads of grayish leaves deeply cut, and increases by means of little slender runners.

G. Rossii is an American sort which we should be able to secure, said to be very dwarf and to bear bright yellow flowers. I have

several American Geums from the Northwest but cannot yet be certain of their value as to blossoms, though the low tufts of green are attractive enough.

G. *triflorum* is one of these, a small, low soft thing that I have not yet seen in bloom. The flowers are said to be dark reddish mixed with yellow (how unattractive) with the calyces purple. These came from Montana. *G. Rossii* is said to inhabit high places in Colorado.

GLOBULARIA.—These little plants are useful for odd corners, but I have never found them of vivid interest. They are not difficult to grow, thriving in open sunny positions in the ordinary soil of the rock garden, not too dry and parched. They are said to enjoy lime.

G. cordifolia makes flat rosettes of dark foliage that emit many balls of lavender fluff in late May on very short stems.

G. nudicaulis said to depart from the family tradition in its preference for partial shade and a slightly dampish place. It bears heads of gray-blue blossoms on six-inch stems.

G. trichosantha grows six inches tall with more balls of gray-blue blossoms. Appears to thrive anywhere.

There are some smaller, choicer kinds that we might doubtless have from seed. These are *G. nana, G. bellidifolia,* and *G. incanescens.* They must have warm corners in sunshine, where no damp will linger over the winter.

GOODYERA—*G. pubescens* (the Rattlesnake Orchid) is a hardy native Orchid for the acid soil bed or any shady place in sand and leaf-soil. Does well under evergreens. Makes a conspicuous rosette of dark leaves mottled with white and sends up a stem to a height of about a foot bearing small white flowers of little value. Its leaves are its fortune.

GYPSOPHILA.—An invaluable race for rock garden and border. They are sun-lovers all, and their long prowling roots make a deep soil necessary. Easily raised from seed and as hardy and easy as one could wish.

G. alpigena.—Unknown to me but well-sponsored in high places and to be had in this country. A little low alpine sort, bearing rose or white flowers. Four inches.

G. cerastioides.—A most charming creeping sort, conservative and neat. Its small leaves are slightly hairy and it bears large beautiful

white blossoms veined with purple. Good and easy and quite choice. Two inches.

Gypsophila fratensis is the best of the small Gypsophilas of my experience thus far. It is quite prostrate, and spready in a very pretty way, never becoming unduly rampageous or troublesome. It bears in May and June for a long period a cloud of pink or blush blossoms. I had the seed of this plant from Lissadel Nurseries, Sligo, Ireland. It is an undoubted treasure.

G. libanotica.—A great, ramping prostrate thing flinging itself this way and that and only to be tolerated where there is space for such abandon. It is blue-gray as to its foliage and pale pink as to its blossoms, which are borne half the summer through. Good for a wall-top where it may hang over in soft gray curtains.

G. repens, white-flowered, with a rosy variety, is desirable in all rock gardens. Makes mounds and sheets of foliage and flowers, low and broad and attractive. Easy, but not to be transplanted when once it is firmly anchored. This is true of most of the race. The form known as *monstrosa* is not an improvement, that is, as we have it in this country, having smaller blossoms and larger foliage than the type.

HABENARIA—*H. blephariglotis* (White Fringed Orchis).—A plant for the bog. Native, with curious white fringed blossoms in short rounded heads. May be had of the Horseford Nurseries.

H. ciliata is the yellow-fringed Orchis that will grow quite readily in moist leaf-mouldy soil. It is a striking and interesting plant, rare in New York State but more abundant north and west as well as south to Florida and Texas. May be had of Edward Gillett.

HABERLEA.—Have had no experience with these plants, but a form, *H. Ferdinandi*, is offered in this country, as well as the type *H. rhodopensis*. Should have a moist shady position, in well-drained, rich leaf-soil and sand. Makes rosettes of soft, dark leaves from whose midst in early summer spring the small lavender Gloxinia-like flowers. Rare and choice.

HELIANTHEMUM.—Invaluable, friendly, and beautiful. Little shrublets, spready and wiry, some erect, some prostrate, bearing dark green, hoary, or silvery leaves, loving sunshine and exposed positions, and floriferous and joyous after a fashion to fill the gardener with delight. There are beautiful and brilliant garden forms, but some of the species are worth growing. All are easily raised from seed.

A sharp clipping over after flowering is required to keep the taller-growing sorts shapely and compact, but the prostrate forms may be left to themselves for all time. Nearly all nurseries offer a good selection, and the species may be sought out and raised from seed by the enthusiast. The nomenclature seems to be a good deal confused but the following may shed a ray of light:

H. alpestris.—Green foliage, yellow flowers. Six inches. Good.

H. amabile.—Neat, hoary, rose-pink blossoms. Six or eight inches.

H. appeninum.—Hoary bushes and creamy blossoms.

H. canum.—Native of Great Britain, prostrate with small, pale yellow flowers. Dusty foliage.

H. lunulatum.—Compact, neat with gray foliage, upright to a height of eight inches. Clear yellow flowers.

H. procumbens.—Yellow.

H. roseum.—Neat and lovely, with pink flowers and green foliage. Some of the fine hybrids are, Bronze Beauty, Brilliant, Mrs. Croft, Bicknell, Fireball, Praecox, Rose Queen, Sudbury Gem, Bride, Clara Middleton, and others.

HELONIUS—*H. bullata.*—A native Liliaceous plant for bog or deep rich soil. Sends up from its tuft of large smooth leaves a stout stem terminating in a raceme of starry flowers, pinkish or lavender. Early May. This plant grows in the pine barrens of New Jersey and is commonly known as the Studflower.

HELXINE—*H. Soleirolii.*—Beware its emerald toils. (See Chapter XI.)

HEPATICA (See *Anemone*).

HIERACIUM.—Beware! (See Chapter XI.)

HOUSTONIA is a most precious small native, the daintiest and most engaging of fairies—and sometimes the most elusive. Not by any means are these little Quaker Ladies to be led by the nose. In some places they will dwell and in some they will not. We may set them out in a pleasantly shaded and cool spot, but we need not be surprised if the next season this choice locality is quite deserted, and to find away along the edges of the starved paths, on precarious ledges, or from the midst of tight wads of Saxifrages, in all sorts of unexpected places, little gatherings of demure Quaker Ladies, quite gleeful and heady with liberty. Gradually they will increase, choosing their own neighbourhoods, until there are throngs of the charm-

ing creatures, and one is glad to be alive just to look at them. There are two kinds—*H. coerulea*, which is the species most often met with, that bears exquisite little pale blue stars on thread-like three-inch stems from a tuft of minute leaves; and *H. serpyllifolia*, whose blossoms are a somewhat more definite blue. A cool moist spot is thought to be their necessity, but we are beginning to suspect that what they crave is an acid tang to their food and where they find this there will they thrive until the brown earth seems turned into the sky with the abundant powdering of their blue stars.

HUTCHINSIA—*H. alpina.*—A little, dark, mat-making plant enlivened in spring with innumerable tiny clear white blossoms. A charming thing and invaluable as a covering for Crocuses and small choice Daffodils. Grows two inches high.

HYPERICUM is a large family and broadly distributed. It comprises shrubs and border plants, as well as many small delightful gifts for the rock garden, most of which have the value of flowering late in the summer and early autumn when the rock garden is not rich in colour. The common name is St. John's-wort. With care they are to be raised from seed.

H. Coris.—A lovely sort, making a low, tufty little bush six or eight inches tall, set with small gray-blue, heath-like leaves and sprays of large golden flowers. Not difficult, but liking a good sandy loam in an open position. Evergreen.

H. fragile.—A pretty trailing variety with lax leafy branches six inches long each ending in a burst of golden flowers. A very fine sort and of easy culture in any sunny, well-drained situation. Evergreen.

H. liniarifolium.—An attractive species of light, lax habit, growing five or six inches tall and throwing its branches about with a pretty spray-like effect. Bears clusters of very bright yellow flowers.

H. olympicum grows a foot tall, with wand-like branches set with gray-green leaves and terminating in several large, brilliant yellow blossoms. It is a beautiful sort, but requires a warm corner, sheltered from wintry blasts, and rather poor, light soil.

A. polyphyllum.—Resembling *H. olympicum* but lower growing and smaller in all its parts. Blue-gray leafage and yellow flowers borne all summer.

H. repens.—A small delight that I have not yet come across. Said to grow in a dense mass of small foliage, making hummocks five or six inches high with blossoms carried in long racemes.

H. reptans forms a close mat flat upon the ground of the slenderest branches covered with small dark leaves and starred over with golden flowers all through the summer and autumn. A real treasure, rapid of growth, but with me suddenly dying out in the most unaccountable manner at the height of its expansiveness and splendid health. I think it should be given a sheltered position where it will be protected from the fierce winter winds, for I find it sometimes a little worn and fragile in the spring. Lovely as a carpet for small bulbs. Suffers from late spring frosts.

IBERIS.—A genus of low, evergreen, shrubby plants of the utmost value for dry, sunny places where the position is well-drained. The little bushes require to be cut over after flowering in order to keep them compact and sightly. Easily raised from seed.

I. sempervirens is the splendid indestructible sort most often seen, hardy and handsome, and bearing its heads of china-white blossoms with the greatest generosity, almost obliterating the dark, thick, shining foliage. It is a good border plant, fine in dry walls, and in the rock garden where there is room for its bushy masses.

I. gibraltarica is a less hardy sort with lilac-pink blossoms. It must be given the hottest and dryest corner.

I. Pruiti, also, as it comes from Sicily and neighbouring shores, requires a warm spot. It is a dwarf sort bearing fine, large blossoms.

I. Jordani is lax and branchy and exceedingly nice for the rock garden. From the mountains of Anatolia.

IRIS.—This great and beautiful race supplies for the rock garden, no less than for the borders and the bog, the fairest of its furnishings. The dwarf Irises are many and various though not widely grown in this country. For the most part they are friendly and amenable and if well selected will spread a feast of colour from earliest spring through June, and some give a blossom or two in the autumn. The patient and careful may raise them from seed without difficulty. I have included in this list a few of the more slender tall sorts for use in low parts of the rock garden, or the edges of the small pool.

Exotic Species and Varieties

I. arenaria is the most undoubted treasure among dwarf Irises, barring *I. gracilipes*, for the rock garden. It is a four-inch mite with a widely creeping rhizome that bears toward the end of April large golden Iris-flowers in such profusion as to leave it, frequently, in a

rather debilitated condition after the effort. It desires the hottest situation to be had—a little sandy plain or slope in full sunshine, and beneath the sand some good vegetable soil that the roots may seek out in seclusion, the while the plant appears to desire only the plainest diet. The slender rhizomes should be buried at least an inch beneath the soil and as they have a tendency to work themselves bare, require several top-dressings with sandy soil during the season. When the plant becomes crowded with growths and blooms poorly, it should be taken up, divided, and transplanted in fresh soil. This should be done immediately after the blossoms have withered. *I. arenaria* comes as easily from seed as the proverbial Cress, and once you have a few plants you may increase them at will by this means, for they seed freely. I find a note to the effect that seeds sown in May, 1916, flowered profusely in April, 1918. And I have now in the frames two rows of fine stocky little plants from seed sown last summer.

I. Bulleyana.—A beautiful slender species a good deal in the fashion of *I. Forrestii*, but bearing toward the end of May lovely spreading blossoms of an especially fine tone of lilac, marked with gold and purple on the falls. The foliage is slender and drooping and the plant grows to a height of about eighteen inches or a little more. A single plant appeared here in a batch of *Forrestii* seedlings, though I had had no *Bulleyana* seed. With me, growing in the same low part of the rock garden with *Forrestii* in full sunshine, the blue-flowered plant seems slightly stockier and stronger growing.

I. chamaeris.—"This is the common dwarf Iris of the south of France and north Italy and is also the ancestor of most of the garden forms that are so commonly known as *I. pumila.* It is distinguished from the true *pumila* by the obvious stem, by the shorter tube, and by the inflated and less membranous spathes." Among them are many easy and handsome dwarf plants for the rock garden. The softly coloured *I. lutescens;* bronze-purple *olbiensis, I. Socrates;* the pale and lovely *I. Statellae; I. gracilis,* a pretty gray kind; *I. lutea,* a robust yellow; *I. formosa,* richly purple; The Bride, Orange Queen, Snow Cup, and many others that will be found well described in catalogues. These flower toward the end of April or early in May, making a rich show, particularly the deep purple forms. They should be given a sunny, well-drained position in good garden loam without manure. Increased by division when the plants become overcrowded.

I. chrysographes.—A tall, slender Chinese species for low places in the rock garden in rich soil, not too dry. It has narrow grass-like leaves and bears purple velvet blossoms, reddish in tone and handsomely marked with gold on the falls.

I. dichotoma.—A curious species flowering in the late summer. Its grayish leaves are arranged in a fan-shaped cluster and its stem rises to a height of eighteen inches or so, branching, and bearing numerous frail and very fleeting blossoms of a greenish white. They are not beautiful according to Iris standards, but the species is valuable because of its late flowering. I owed my plants to the kindness of Mr. B. Y. Morrison; they lived and flowered for two seasons and then succumbed during an extreme winter—so I have lost my *dichotoma.* China.

I. ensata.—A widely distributed Asiatic species which has numerous forms. I have strong plants from seed but cannot report upon the blossoms, as they have not flowered. Mr. Dykes says they require to be established several years before they will bloom. My plants are growing thriftily in a hot and arid region of the rock garden. The foliage grows two feet tall, is rather narrow, and lasts well into the winter. The blossoms are said to be beautiful, varying from pure white with delicate veining to several shades of purple.*

I. Forrestii is lovely in a low part of my rock garden. A sturdy, slender species with pale yellow spreading flowers in great profusion and narrow, grass-like foliage. It is thriving in the ordinary soil of the rock garden in full sunshine. Eighteen inches. Blooms toward the end of May. Easily raised from seed.

I. gracilipes.—The most precious of all the dwarfs for the rock garden; a little slender Iris, perhaps a foot tall, forming a fountain of narrow foliage, and about the middle of May sending aloft slight stems carrying exquisite fragile blossoms, thin as tissue and of the colour of the early morning sky in the most amazing profusion. These lovely plants should be given a well-drained spot in fibrous leaf soil and a position where they do not receive the full force of the sun for the entire day. My best clumps are growing behind a fat little Spruce that shields them on the southern side. Requires to be occasionally top-dressed with leaf-soil. Increased by division or seed sown as soon as ripe. Japan.

I. graminea.—A beardless Iris forming stout clumps, the leaves

*Bloomed in early May.

attaining a height of perhaps eighteen inches, and the flower stems not overtopping them. The blossoms are red-purple in effect and have a pleasant fragrance. The plant is unusual and interesting in appearance and may be used on the rock garden where there is room. Ordinary soil and sunshine. Easily raised from seed and increased by division.

I. lurida redoutiana.—A dwarf Iris of sturdy build and easy to grow, giving its copper-coloured blossoms in May and frequently again in late October.

I. minuta.—This small, beardless Iris is not known in a wild state, but was found growing in a garden in Tokio. It is a very slender thing with small, fragile yellow flowers. It thrives here in the same soil and exposure as *I. gracilipes*. Very scarce in this country.

I. pumila.—The lovely dwarf early-flowering Bearded Iris, the best known form of which is *coerulea,* now grown very scarce. Grows happily in any open sunny spot in good garden loam devoid of manure. Blooms with the Daffodils, Arabis, Aubrietia, and such early delights. Even before *coerulea* flowers a kind that came to me from Mrs. McKinney as *atroviolacea.* It is a most engaging small thing but four inches high, producing the most amazingly large purple blossoms, the falls deeper in tone than the standards. This is the first Iris to bloom in my garden after the glorious *I. reticulata.* Two other delightful dwarf Irises for the rock garden, are Mrs. McKinney's solemn little Black Midget, which makes a splendid patch of rich purple colour—a perfect foil for brilliant Tulips—in late April and early May; and her well-named Glee, which covers itself with yellow glory for a period of full three weeks in mid-spring.

I. Reichenbachiana.—Another small bearded form, compact and sturdy, that flowers early in May. There are several forms. Very dwarf.

I. reticulata.—The beautiful bulbous species that with all other bulbous Irises is denied us by the quarantine enactment. Happily I have a few bulbs salvaged from the old garden and these are increasing. Flowers late in March or early April, often through a late fall of snow. The blossoms are deliciously fragrant and appear like glorious purple butterflies among the narrow erect foliage. They must have an absolutely drained position, in light soil against a hot rock facing south. Seed is sometimes procurable.

I. ruthenica.—I once had a plant of this small loveliness raised

with the greatest care from seed, but lost it through the villainy of a by-the-day man who dug it out in his dreadful and misguided zeal. I have never since seen seed of it offered, though I have watched the catalogues of the flower-growing world in the hope of getting more. To understand my grief you must look at its portrait in Mr. Dyke's great book.

I. setosa.—A not very distinct or attractive species of the beardless section, widely distributed, and having numerous forms. I have raised it many times from seed but never got anything worth keeping save once. This was a form called Labrador, very dwarf and with the most lovely clear blue blossoms, lightly veined, borne in great profusion. Not realizing that I had so great a treasure I was very generous with it and gave it away to all admirers until I was reduced to one small clump, which was lost in moving from the old garden to the new. If any one still has this dwarf, very blue form I should dearly love to have a few seeds.

I. sibirica.—The Siberian Irises are light and graceful in effect and though tall may be used in low parts of the rock garden where the soil is deep and rich, or in groups near the pool or a brook. The white form, *I. siberica alba,* is very lovely, and Mrs. Cleveland's Mme. Butterfly, clear porcelain blue on stems four feet high, is a beauty. Mrs. Lucius Hitchcock, of New Rochelle, N. Y., has registered a most choice and lovely variety as Miss May; there is a hint of a blush in its light lavender colour and it is clearly veined with deep blue.

I. Wilsoni is a tall newcomer in the fashion of Forrestii, having the same slender habit and sending up a sheaf of stems bearing yellow blossoms. Good for the borders of the pool. Blooms about June 5th.

The tall Bearded Irises are in general too large for the rock garden though where there is plenty of room some with *ciengialti* blood, like Miss Sturtevant's charming Bluet, might be used in a sunny place.

American Species

Concerning American Irises there exists in America the most amazing ignorance and indifference. Even in gardens where the Iris is made a special feature we may search in vain for a single native, and this is the more remarkable when we consider that our country is especially gifted in distinct and beautiful species. Until recently none save *I. versicolor* and occasionally *I. cristata* appeared in American catalogues, and even now when we have a great Iris

society and the interest in this beautiful flower is greater than ever before, scant notice is taken of the natives, though there are many beauties among them and some are difficult enough to intrigue the gardener who loves a knotty problem.

I. cristata is a most lovely Eastern species found decorating the hillsides and stream margins of many of the Southern States. It is a little creeping species that will make broad, close masses in a short time, and bears in great abundance large lavender blossoms marked with gold very early in May. It is a most amiable and beautiful garden plant, thriving in sun or partial shade and in any good garden soil, and especially happy used as an edging to plantations of taller-growing Irises, or in spreading patches among spring-flowering plants. On the rock garden it is in place anywhere, and its blossoms are inferior to none of the choice gathering about it. For long I hoped for and sought the rare and exquisite white form, and last spring there came a root of it from Mrs. McKinney. On the label was inscribed, "Iris cristata alba—To revive your faith in prayer."

I. lacustris is allied to *cristata*, but is a smaller, frailer plant, both in appearance and in constitution, not spreading about in the easy, friendly manner of its sister of the South. It grows along the shores of Lake Huron and is not at present to my knowledge offered in catalogues. Plants of this species also came to me along that broad and pleasant road of friendship.

I. verna is another small and lovely Southern species which has finally flowered here freely after many trials with it in the old garden where it simply sat and sulked. A little shade is its desire and a fibrous leaf-mouldy soil, perhaps a trifle acid. It grows only a few inches tall and its flowers are lavender with a line of gold along the falls and are fragrant. Native of Virginia and neighbouring states. A lovely kind for the rock garden. Blooms early May.

I. Hexagona.—Under this head Mr. Dykes groups three of our native Southern species, *I. Hexagona*, *I. foliosa*, and *I. fulva*. The first is found from Kentucky to Florida and Texas but has proved perfectly hardy here. This species is rather too tall for the rock garden, but the closely allied *I. foliosa* should have a place in rock gardens of large size. I think it is the most truly blue of all Irises and makes a lovely show, though the broad, large blossoms are borne well down among the slightly glaucous, flexuous leaves. It grows here in the rock garden in a pocket of deep rich soil in partial shade,

and blooms early in June very profusely and for several weeks, maturing an abundance of seed. The rhizomes extend rapidly and the plant requires division every few years. Handsome for any garden border where the soil is deep and rich.

I. fulva has long been a favourite. The copper hue of its blossoms makes it unique among its kind. Although it is a tall-growing plant, I grow it in the rock garden because of its unusual interest and beauty, and it thrives there in a low-lying corner in deep black soil, in full sunshine. It is found in the neighbourhood of New Orleans. A hybrid has been raised between *I. fulva* and *I. foliosa* that has the habit largely of the latter and beautiful violet velvet blossoms most unusual in appearance. Its name is *fulvala,* and it is as amenable and as desirable as the parents. Parents and hybrid bloom early in June.

Mr. Williamson's hybrid between *fulva* and *Hexagona,* Dorothea K. Williamson, is also a handsome plant whose blossoms have a velvet texture and rich violet-purple colour. It has proved entirely hardy here growing in an ordinary sunny flower border.

I. tripetala (*tridentata*) belongs to the Southeastern States. I have a number of thrifty plants in the nursery but have not yet seen them bloom. It is said to be allied to *setosa.*

I. prismatica graces our own neighbourhood though not very plentifully. My plants are the reward of a pleasant bog-trotting expedition with the New Rochelle Garden Club, and are much prized. It grows with no great frequency in damp meadows from Maine to the Carolinas and Georgia, a slender species with very narrow foliage and a wiry stem, curiously forked, carrying fragile butterflies of blossoms most lovely and delicate in colour and marking. Some are quite blue, others much paler, and all are marked and veined with white. A truly lovely sort and not to be confused with the stronger growing *I. versicolor* which so radiantly colours our Eastern wet meadows. The latter is too expansive and hearty for the rock garden but is a glorious possession where there is room for it in some half-wild, boggy spot.

Among the many beautiful Western Irises we still walk with great uncertainty. *I. missouriensis* sulked with me for many years, remaining a thin, bloodless creature, barren of blossoms. But after a winter spent with Mr. B. Y. Morrison in Washington during my moving, it returned to me hearty and stout—I can't believe it to be the same poor stick that went down to him, but a healthy changeling

substituted out of the kindness of his heart—and blossomed with an unbelievable jauntiness. And it is most lovely. Mr. Andrews offers both plants and seeds of it. It grows in the Rocky Mountains and is closely allied to *I. longipetala,* found farther West, and a most lovely species, not at all difficult to grow in rich, deep soil in a sheltered position.

Mr. Purdy offers a long list of California species—plants as well as seeds, and all who care for this flower of flowers should make a trial of them, for we want very much to learn their ways and needs so that we may count upon them as permanent ornaments of our Eastern gardens. I have *Iris tenax* established on the rock garden and growing very well in bright sun in the ordinary soil mixture, gritty and free. *I. Purdyi,* a little less happy, and a bed of mixed California seedlings in the nursery that will flower this year and are in fine and sturdy health. Nor is it a very comfortable bed, being rather hard and stony, where the seedlings were tucked in a time of hurry and great business with the intention of moving them later. But there they have remained for two years, the plants wintering without covering, and I could not wish them in better shape. What I have in this collection I do not know, but among them I am hoping to find *I. montana,* seed of which was sent me by Mrs. Dean of California, and which from its portrait in Mr. Dyke's great book must be a rare beauty.

JEFFERSONIA—*J. diphylla.*—A little plant that lives in our Northern woods and makes a very pretty mass of starry bloom and delicate foliage in a shady corner of the rock garden. The flowers are not unlike those of the Bloodroot but lack their concision and purity of tone. It is about eight inches tall at flowering time, but the summer greenery reaches a height of fifteen inches. April and May. Its common name is Twinleaf.

LATHYRUS, a race of climbers most of which are too rampant for the rock garden. *L. rotundifolius,* however, is a small and slight edition of the well-known *L. latifolius,* and may be used to trail over a sunny rock. It is easily raised from seed. Years ago I had a fragile, alluring form called *L. tuberosus* with small claret-coloured pea-shaped blossoms. It scrambled about the borders, using any convenient stem for a lift, in a most charming manner. I have lost it, but would like well to have it again to ramble over stones and the small shrubs in the rock garden. See *Orobus* for other plants sometimes listed under "*Lathyrus.*"

LAVENDULA.—Dwarf forms of Lavender are very good in the rock garden, making lovely patches of soft colour. They are for the sunniest places in dry, well-drained soil. Lavender is fine for dry walls, facing south.

LEONTOPODIUM—*L. alpinum.*—This world-famous alpine is not at all difficult to grow and may even be raised from seed without special care. As seen in our rock gardens it has little beauty, appearing a dingy thing of flannelly texture, but everyone who grows alpines at all tries his hand sooner or later at the Edelweiss. It requires a very dry and sunny situation where the soil is perfectly drained, for damp is its only enemy.

LEPTINELLA (*Cotula*) *scariosa* is a flat green carpeter with flowers of no account. Only fit for some corner where nothing better will grow.

LEUCOCRINUM—*L. montanum* (the Sand Lily, or the White Lily of the Mountains).—We must thank Mr. Andrews of Boulder for making it possible for us to know this lovely thing. It makes a tuft of narrow, grass-like foliage from the midst of which are thrust in spring lovely, large white flowers like a Crocus, opening star-like and sweet-scented in great numbers. After flowering the plant dies down, so care must be taken not to disturb the sleeping roots. Grow it on a sunny, sheltered slope of the rock garden in light, warm, deep sandy soil. All should know this beautiful plant of our Western mountains.

LEWISIA.—Here again we are looking to the West but with less certainty of reward, for we have yet to learn how to make the spectacular and beautiful Lewisias permanent in our Eastern gardens. Mr. Purdy refers to them as growing in the mountains under trees in leaf mould, but from my experience with them I should recommend a more open and sunny situation for them in our lowland Eastern gardens, a very well-drained soil composed of leaf material, sand, and grit. The leaves of *L. rediviva* die away after flowering and the position of the plants should be marked so that the roots will not be disturbed. Of the six kinds I tried all came through the winter, though they were not set out until November, but they suffered horribly from the damp in spring in the shaded positions to which I had condemned them—all save *rediviva*, to which I had given, by chance, more sunshine and a well-drained soil. None survived the second winter.

L. rediviva, the *Bitter Root*, perhaps the easiest sort, forms a rosette of narrow fleshy leaves from which arises a quite miraculously beautiful flower, a satiny pink creation, half Water-lily, half something not of this world, upon a stem an inch high, during the first week in June.

L. Tweedyi is also a wonder, a larger plant with broad leaves and more erect, said to make mats of rosettes eighteen inches across when happy in its surroundings and bearing beautiful salmon-pink blossoms.

LILIUM.—Lilies are not generally considered in connection with the rock garden, but a few of the smaller sorts may with felicity be admitted. Our own *L. philadelphicum* for a sunny corner in acid soil is a beauty, and the waxen *L. tenuifolium* should have a place; and *L. Krameri, L. rubellum, L. umbellatum, L. canadense*, and others.

LINARIA gives us many a small creeper for softening the outlines of our rocky landscape, for ground-covers over bulbs, for creeping between the joints of steps and paths. They are frail in appearance but quite rampageous in behaviour, and one needs to keep an eye on them in the neighbourhoods of small choice things among whose roots they dearly love to insinuate their own.

L. aequitriloba.—A minute Toad-flax from Corsica, probably the smallest of the race. Charming for outlining with the most delicate green tracery the joints of stone steps in sun, to which it adds the attraction of little purple blossoms nearly all the summer through. This wee treasure may be had of Miss Mary Wright, The Logan Nurseries, Philadelphia.

L. alpina.—Whether annual, biennial, or perennial, makes small difference, for though it is certainly not reliably hardy it keeps itself going by means of self-sowing. It is never in the way, a lovely little gray film of a plant spreading about happily and decking itself in violet blossoms lipped with vermilion—amazingly brilliant for such tiny things—all the summer through. There are other forms but none so charming as the type. Seed.

L. Cymbalaria is also a lovely thing for the joints of walls or steps, reaching up little green feelers in all directions and piling up little masses of delicate leaves and tiny blossoms in shady corners. There is a pretty white-flowered form. This delicate little plant has proved perfectly hardy in both my gardens, but never grows very rampantly.

L. dalmatica.—A glorified Butter-and-eggs. Too large for the rock garden.

L. hepaticaefolia is also a most lovely little trailer in the fashion of the Kenilworth Ivy, but with fleshier leaves shaped like those of a tiny Hepatica, and abundant lilac flowers. Other small kinds are *L. petraea, L. pilosa, L. satureioides,* and *L. pallida.*

LINNAEA.—*L. borealis* is the lovely and fragile Twin-flower of our cool, moist woods. In cultivation it requires an acid soil, leaf-mouldy, and open in partial shade or sun. It has not proved an easy plant to manage in captivity, but it is worth any trouble expended in its behalf.

LINUM.—A race of fairy flowers, easy and joyous in any high, sunny, breezy place where the soil is light and free. Raise them from seed that you may have all you want of their charming society. All the Flaxes known to me are desirable.

L. alpinum is a perfectly easy plant and very charming, though in à gentle, unobtrusive way. It is like a dwarf, *L. perenne,* with large round bright blue blossoms at the ends of its spraying, leafy shoots. For a sunny dry spot where it may lie over a flat stone.

L. austriacum.—Better than *perenne* but much in the same fashion.

L. capitatum.—A yellow-flowered Flax from southern Europe that has proved hardy here. Near to *flavum* but with its flowers in a closer head. Very dry, well-drained spot.

L. flavum usually does better in the rock garden than in the herbaceous borders, where it might be said more properly to belong. It loves the gritty soil and well-drained conditions generally and is there apt to be very fairly permanent. Grows into a leafy bush ten inches high and bears large heads of beautiful golden-yellow flowers in the early summer.

L. hirsutum is a beautiful downy plant growing a foot tall and bearing large blue-purple blossoms with white eyes. A warm, dry situation.

L. monogynum.—Have never been able to keep this delightful New Zealander over the winter in the open. It is easily raised from seed, and gardeners south of Philadelphia may enjoy its dense, neat little bushes that in summer are covered with large beautiful white flowers. A real treasure, and not difficult save where the winter is too severe for it.

L. Lewisi.—A native Western form with pale blue flowers that starts out in the spring quite a conservative plant but gradually grows a yard high and flops all over the place. Not for the rock garden.

L. narbonnense wears the most beautiful blue of all but has proved with me rather tender.

L. perenne.—The common Blue Flax of gardens, heavenly in colour but too large and rampageous for the rock garden.

L. salsoloides.—A small plant, spray-like in growth, with purple-eyed white blossoms borne at the ends of its delicate leafy prostrate branches. Grows in a small fountain-like tuft. Very lovely and not difficult on warm, sunny slopes of the rock garden where it will feel no damp in winter.

LIPPIA.—*L. repens.*—Used in the place of grass in parts of California, but offered as a rock plant. Beware of it. It increases with lightning-like speed, and its pink verbena-like heads, tiny and pretty, are no compensation for the havoc it causes. I have let it in to my cost, and unless an extreme winter comes to my rescue, think I shall never be rid of it.

LITHOSPERMUM.—The Heavenly Blue variety of *L. prostratum* has disappeared from American catalogues since the quarantine enactment. Mrs. Wolcott offers *L. petraeum*, which is described as a neat, woody bush with pale lavender and purple flowers in heads. Easy of culture in any good loam.

I have from the West several *Lithospermums* which promise well. Of these *canescens* with tufts of grayish leaves and stems six inches tall carrying heads of orange-yellow flowers is desirable, but I cannot yet say if it is hardy, though coming from Montana it seems likely that it will be. *L. liniarifolia*, from the same locality, is also pretty, with lighter yellow flowers; and Mr. Andrews offers us *L. multiflorum*, the Golden Bell of the Prairies, an easily grown plant with panicles of yellow bells produced in the greatest profusion.

LOTUS—*L. corniculatus.*—A small scrambler for sunny places that may be raised from seed. It bears many yellow flowers sometimes edged with red. This is the Bird's-foot-trefoil or Ladies'-fingers, found in sunny meadows in most parts of Europe.

LUPINUS.—I have raised from Mr. Andrews's seed *Lupinus argenteus*. It is an interesting Lupine, making a flat mass of gray, beautiful leaves from which arise the spikes of blue-purple blossoms. Must have a very dry, sunny, well-drained spot or it will not withstand the winter. There are other low-growing Western forms suitable for the rock garden but they are difficult to get at. Travellers in the West might bring back seed with profit to themselves and others.

LYCHNIS, a race whose chief usefulness is in the garden borders but having a few small choice members for the rock garden. All come as readily from seed as mustard.

L. alpina.—A small tufty thing whose albino form is better than the magenta-flowered type. For any sunny corner in well-drained soil. Four inches.

L. dioica.—A foot tall and blooming assiduously during the summer. Not choice but friendly, though some will object to its unmentionable hue.

L. Flos-cuculi has run wild in some places and though pretty is no plant for the rock garden. It is called Ragged Robin.

L. Flos-jovis has gray foliage and large clusters of carmine-pink flowers. Easy but not invaluable.

L. Haageana, with blossoms of blazing scarlet and tufts of reddish leaves, grows in poor dry soil in rather a nice tufty way and is permanent.

L. Legascae is for a hot, dry slope or crevice. Makes a mass of leafy, prostrate, weak stems, albeit neat and fairly compact, and bears in early summer a profusion of rosy small blossoms with white centres. One of the best of the race. Comes readily from seed and is hardy here.

L. pyrenaica has quite glaucous foliage and something the same habit as its neighbour, *Legascaea,* but is more choice, more tufty in growth, and with flowers pink or white. Also easily raised from seed.

L. viscaria is too tall for the rock garden and not nearly a good enough plant for the select company there entertained.

LYSIMACHIA—*L. Nummularia.*—That ramping little Money of which we must eternally beware if we would grow choice rock plants, but which we may enjoy a mile or so away from their haunts, along shaded paths or on banks where grass will not grow. (See Chapter XI.)

MAZUS—*M. pumilio* (sometimes offered as *Mazus rugosus*).—An indefatigable small spreader carpeting the ground with bright green leaves and a spangle of lilac-and-white Snapdragons. It should be suffered nowhere save in the joints of steps or paths. Very charming but grasping, and though from New Zealand is entirely hardy here.

MALVASTRUM—*M. coccineum* is a most delightful little Mallow that I had from the Northwest which should be in every Eastern rock garden. It is perfectly hardy and free-growing, running about

in the sandy, stony soil in sunny situations and bearing among its pretty gray foliage all summer long brilliant flame-coloured Mallow-flowers in great profusion. A real treasure—but it must be given a dry, hot situation if it is to flower well.

MECONOPSIS.—Can say nought of this great race as yet.

MENTHA—*M. Requieni.*—A tiny mint from Corsica spreading over the ground a perfectly flat mat of infinitesimal leaves and minute pale blossoms. Touched it emits a minty fragrance stronger than do any of its great cousins. Sometimes winter kills but usually springs again from its own seed. Nice for the joints of stone paths or steps in moist, shady places.

MERTENSIA is a genus of charming bell-flowered plants dealing in the most heavenly blues. For the most part they are mountaineers, dwelling in the mountains of Europe and America; a few are lowland plants. They come readily from seed and are not difficult to grow.

M. alpina is a plant of the Rockies in Colorado. It is said to be six inches tall with grayish, paddle-shaped leaves and a cluster of azure bells. We should be able to obtain this plant through some of our Colorado friends. *M. Bakeri* is another belonging to the same locality, but taller, and the whole plant is covered with down.

M. brevistyla.—Miss Armstrong in "Western Wildflowers," writes of this small species as growing in the mountain canyons of Utah, Colorado, and Wyoming, describing it as from four to ten inches high, the leaves bluish-gray, slightly downy on the upper sides, with clusters of bright blue blossoms like Forget-me-nots. Another that we should like to have.

M. ciliata is a robust form from the Rockies raised from seed obtained from Mr. Andrews. It has more leaf than blossom and is over-tall for the rock garden, though quite worthy a place in the border where its arching stems of sky-blue and pink bells make a pretty show in summer. Foliage glaucous, and dies down after flowering.

M. lanceolata is another inhabitant of the Rockies which may be had through Mr. Andrews and is easily raised from seed. I have a quantity of young plants that have not yet flowered. The leaves are glaucous and smooth. The blossoms are said to be carried in wide sprays and to be of the most lovely bright sky-blue. Dies down in the late summer. Likes a sunny place in light soil well mixed with chips.

M. papillosa is a lovely small thing that came to me from Mr.

Lown but belongs in the West. Grows about a foot tall and has bright blue blossoms in May. Fairly good soil and sun.

M. pretensis is a tall, luxuriant, green-leaved form for low places or herbaceous borders. It comes from the Spanish Peaks. Sends up numerous arched and leafy branches hung closely with sprays of blue bells and pink buds. Have not found this as certainly hardy as some of the others. Mr. Andrews can supply it.

M. virginica, the lovely Lungwort or Virginia Cowslip of our gardens, is hardly for the rock garden, though where there is room for it in a low place where the soil is rather damp and rich, no more charming plant could be found.

The foregoing are all native to our own soil, but there are many beauties from abroad that we may have by raising them from seed. Some of these are *M. elongata, M. echioides, M. primuloides.*

MICROMERIA—*M. croatia.*—A half-shrubby, aromatic, headlong little plant of much charm and sweetness. Small pale pink flowers. For any sunny corner. Blooms all summer.

MIMULUS.—A large family on which we need draw seldom for the rock garden.

M. alpinus is an inch tall, spreading over the ground in any sunny place not too bone-dry. It makes a pleasant green carpet and bears many little copper-yellow flowers.

M. moschatus is not hardy with me, but this little old-fashioned yellow-flowered Musk is a pleasant possession, coming easily from seed sown in half-shaded places, forming masses of low growths and bearing all summer innumerable yellow blossoms that ought to be sweet, but are not always so. Sometimes self-sows.

MITCHELLA—*M. repens.*—The familiar Partridge-berry of our woods that grows so freely in the wild but is often difficult to establish in cultivation. It thrives naturally under evergreens and is a fine little carpeter for the acid-soil bed.

MITELLA.—*M. diphylla* grows easily in any cool, shady corner. The Bishop's Cap is often to be met with in our Eastern woods. Its tufts of leaves are very ornamental and it carries its slender stems of tiny white stars with a peculiar grace and elegance. There are numerous Mitellas in the West that we should be glad to grow in our Eastern gardens.

MONTIA.—*M. parviflora* is a little slender plant sent me by Mr. Purdy. It is related to Spring Beauty and appears not unlike it,

though the blossoms are not so pink. Appears to like a shady, cool place.

MYOSOTIS.—There are many kinds of Forget-me-not, and it would seem impossible to have too many in the garden. No flowers add so much to the beauty of the spring garden, not alone grown as a sky for fiery constellations of Tulips, but informally, allowed to roam in gypsy bands whither they will, seeding about beneath the shrubs and in odd corners and swirling into little pools among the Daffodils and Arabis. They are not made enough of in most gardens, being merely used as bedders; and those who know them only in this inferior rôle have missed half their deliciousness. They are simple friendly flowers, and like to grow in little friendly gardens where their prettiness will be enjoyed for its own sake. Left to themselves they will take up the most charming companionships, surprising us anew each spring with gay and felicitous associations.

M. alpestris is the parent of many beautiful hybrids, of which Ruth Fischer is perhaps the best known. This handsome form is not reliably hardy in my garden unless carried over in a frame. It has dark shining leaves and an especially nice tufted growth. The Victorias belong to *alpestris*.

M. azorica is a tender sort which I must carry over in a frame, but it is worth a little trouble, for it wears the darkest, deepest blue of any.

M. dissitiflora is the earliest form to flower, growing six or eight inches tall and carrying its light sprays of sky-blue flowers with a special airy grace. There is a fine white form. A free seeder and good to have. When the seed is matured pull up the plants and shake them over any spot that requires beautifying, and the result is magical, for soon spring the myriad little hairy tufts, and when April comes round again there are many patches of Forget-me-nots lying about the garden, supremely young and fresh and pretty, enhancing all to which they are adjacent.

M. palustris semperflorens.—A fine form of the Water Forget-me-not that blooms all summer. For low dampish places in sun or partial shade.

M. Rehsteineri is a wee delightful variety found in the neighbourhood of Lake Geneva. A good little carpeter two inches high bejewelled with sky-blue blossoms for a long time in spring and early summer. It is a fairly reliable perennial, but requires to be oc-

casionally treated to a dressing of sandy leaf-soil worked in among the growths.

M. rupicola is the lovely alpine Forget-me-not, tight and tufted in habit, brilliant of blossom. It begins to bloom when the plant is but an inch high and may easily be known from other forms by the peculiarity of its central head of buds and blossoms being conspicuously large. It should be grown in soil that is light and well drained in full sunshine.

M. sylvatica.—An easy and invaluable kind for sowing freely about the garden. There are blue, pink, and white varieties and all are lovely. It delights to run along beside the woodland path or to hide beneath the shrubs, and it self-sows so freely that once let it in and protect it from the zealous weeder, there will always be sheets of lovely colour in the spring garden. Very lovely sown among Primroses.

NEPETA—*N. Mussini.*—Invaluable when we get the true sort, worthless and weedy when we get the plant largely offered in its place. The impostor is curiously like the honest plant, but coarser in leaf, in flower, in its herby aroma, in growth and habit generally. If you are charmed with it, you have the true form, if you hate it you have the false. A delightful rampant plant for borders and walls, and for the rock garden among such other stalwart revellers as *Arabis, Alyssum, Iberis, Linum perenne,* but not for the neighbourhood of the small and shrinking. It makes a mist of gray, tumbling branches and lavender spikes, from the time the Tulips blossom pretty well until frost if given an occasional clipping. Requires a dry, sunny position and to be divided every year or two.

NIEREMBERGIA—*N. rivularis* (the Cup Flower) is a small beauty said to come from the region of the River Platte. It makes a close mat of soft green leaves out of whose midst arise on very short stems, and all summer long until struck down by frosts, large fragile white cups of the greatest charm. It behaves badly in my garden, seldom surviving a winter, and my friend Mr. Julian Hinckley of Long Island is under the necessity of furnishing me with a new sod of it every year—though for him it is an undying treasure, flourishing and blossoming and enduring with the best and hardiest. It is said to desire a moist place, but the only time I ever kept it over a winter, it grew in the hottest and dryest spot the rock garden had to offer.

OENOTHERA.—The trouble with the Evening Primroses—that

prodigious American plant family—is that where they are reliably hardy nothing but the whole garden will satisfy them. Among them are worthless and troublesome weeds, numerous very good but rampageous border plants, and a very few that are fit for the rock garden. All if made comfortable will bear watching, for they spread rapidly from the root. They like sun and drought and sharp drainage. Easy from seed.

O. Arendsii is so highly praised by Mr. Farrar that I put it down, though I have no idea where it may be had.

O. acaulis is low with yellow flowers on six-inch stems.

O. caespitosa is the best up to date for the rock garden, making mats of low tufts which give up great, frail pink flowers.

O. Fraseri, O. fruticosa, O. Lamarckiana are ramping yellow-flowered border plants. *O. speciosa* belongs also in hot borders and is quite beautiful with ephemeral pinky-white blossoms, but is not for the rock garden.

O. Howardii (*brachycarpa*).—Admissible to the rock garden. A low sort with yellow flowers.

O. mexicana.—Have carried some plants of this tender Mexican species over the winter and hope to enjoy its pink blossoms during the summer. Its habit is very low and its foliage small. Would live out south of Philadelphia. And may be reliably hardy here in sheltered, well-drained positions.

O. pumila is a neatly rampant small biennial with yellow flowers. I tolerate its pretty weediness about the paths of the rock garden where it self-sows and keeps going without aid from me.

O. marginata (*eximia*) runs about in sandy soil producing, if the summer is hot and dry enough to suit it, great numbers of its large flimsy looking blossoms, white at their wakening but becoming pink as the day wears on.

OMPHALODES.—Belonging to the Borages—race of lovely blue flowers.

O. cappadocica and *O. Luciliae* are beautiful Forget-me-not-like plants not at present available in this country so far as I know. Both are capricious, the one asking for shady corners in light rich loam, the other for a torrid crevice, but neither one invariably responding graciously when given its heart's desire. They may be raised from seed without great trouble, and the gardener who likes a puzzle may find pleasure and interest in trying to please them.

O. verna.—Blue-eyed Mary on the contrary exerts all her small wiles to please us. The most friendly and ingratiating modest creature, a child of April, offering lovely sprays of Forget-me-nots, bluer, indeed, than these, in generous freedom. This is a very old garden plant, and has a quaint old-fashioned air that is refreshing in this day when size and splurginess count for so much, and charm and delicacy for so very little. Blue-eyed Mary is a nice companion along a woodland walk, as is her pretty white sister, or on the north side of the rock garden where there is room for their gentle reaching and spreading. They are hardy and ask for nothing where the soil is loamy and well-drained and there is shadow for part of the day.

ONOSMA—*O. tauricum* (the Golden Drop).—Sole member of this race that has grown in my garden. It is a beautiful and joyous plant, revelling in a hot situation and light soil, making masses of gray foliage and producing many golden flowers in summer. I have not tried to raise this from seed, but Mr. Purdy can supply the plants. One foot or eighteen inches.

OPUNTIA—*O. vulgaris.*—The Prickly Pear that used to festoon the rocky hillsides in Westchester County, N. Y., with its mats of fat leaves and glorious yellow flowers before the march of Suburbia put an end to so much that is wild and beautiful and peaceful, deserves to be kept in our hearts and in our gardens. It loves exposure and sun, a rocky ledge, a hot gravelly bank, and will there spread and prosper and be a perennial delight.

ORIGANUM.—Pleasantly aromatic, herby things that are good to have about. The common Marjoram is quite good enough for a corner not required for the aristocracy, and will make a cheerful roseate spread of leaves and flowers long after most things are done with colour and blossoming. All the kinds are easily raised from seed and love warm, sunny places.

O. Dictamnus, a shrubby sort from Crete, is not hardy with me but doubtless would be a little farther south.

O. pulchrum I remember as a silvery little plant that lived a number of years in the old garden, and foreign catalogues offer a long list of names to choose from.

ORNITHOGALUM—*O. umbellatum.*—The Star of Bethlehem, beloved of all who number a country-spent childhood among their memories. I dug my present store from the newly made sidewalk of a neighbouring suburban development, and was so glad to rescue

them from the fate that befalls so many plants when old estates are given over to "improvement." No one need scorn the Star of Bethlehem. If you have a few bulbs cherish them and enjoy their gracious response in stars of the most shining purity, increasing in numbers year by year in any shaded place. They are lovely springing through the green straying branches and blue blossoms of Periwinkle.

OROBUS.—Related to *Lathyrus*, with the pea-shaped flowers that are the badge of its order, but of non-climbing habit. Easy to raise from seed.

O. aurantiacus.—A foot tall with neat habit and orange-tawny blossoms.

O. cyaneus.—A charming thing I possessed once for a number of years and then lost through some accident. Dwarf, with azure blossoms. Likes a fairly cool place. There are many more which may be chosen from any seed catalogue and easily raised.

OXYTROPIS widely decorates the West and we should be seeking out the best of them. I think Mr. Andrews can help us.

PAPAVER (See Chapter IX). Species for rock garden: *P. alpinum*, *P. nudicaule*, *P. rupifragum*, *P. caucasicum*, etc.

PARNASSIA.—*P. caroliniana*.—I lived for many years with a meadow full of the lovely Grass of Parnassus at my very door. I had but to step out of my kitchen door and down a little slope, cross the brook, our "Laughing Water," to be in the midst of it. It flowers in the late summer sending up from its tuft of shining, leathery leaves, slender stems each carrying a single white flower veined with green. It looks far more like a spring flower than one belonging to the lush summer. It requires a damp place and is far too precious and rare to collect unless we have a suitable place for it.

PARRYA.—*P. Menziesii*.—We may buy the seed of this little Rocky Mountain plant from dealers across the water, but we look for it in vain at home.

PENTSTEMON.—Almost wholly an American family. It contains many beautiful members, as well as numerous undoubted douds and weeds. The nomenclature is in a chaotic condition between cataloguists and botanists. I try all I can get but never know if they be rightly named. They are easily raised from seed—when you can get the seed.

P. alpinus, raised from seed sent me from the Rocky Mountains by Mr. Andrews, is quite transcendentally beautiful. From a cluster

of glaucous leaves arises a slender curving stem hung with clear sky-blue blossoms, white-throated. It is growing here in a hot exposed position in sandy soil. It is said to be short-lived so that it is well to watch for and gather the seed. Five inches. Blossoms in early May.

P. albidus.—Called by Mr. Farrar a dullness of no merit But my plants of it look promising, dwarf and grayish, and have weathered the winter, so I shall wait and judge of its white flowers myself. It grows in sun in a dry place.

P. acuminatus rises to a foot in height and bears beautiful wide-mouthed violet-blue trumpets in a handsome spike. Leaves gray. Good for dry spot in sun.

P. coeruleus (*P. angustifolius*).—Another beauty raised from seed obtained from Mr. Andrews. A taller plant than *P. alpinus* and blossoming in late May and June. The leaves are green and the wand-like stem is closely set with large azure blossoms with hints of rose and mauve about the throat. Sun and a light, sandy soil.

P. diffusus.—Not good enough for the rock garden, but a quite pretty, though rampageous border plant.

P. digitalis.—Very good as a border plant.

P. acaulis.—A low white-flowered sort sent me by friends in the Northwest—pretty.

P. grandiflorus.—For borders only.

P. glaber.—A biennial, but a beauty, growing eighteen inches tall, gray-leaved with exquisite clear sky-blue flowers.

P. glaucus.—Have this now in the frames. Said to be very dwarf and to bear large violet flowers in clusters. Belongs to the Rockies.

P. heterophyllus.—A charming, slender erect plant with exquisite blue flowers deepening to violet. One foot.

P. Scouleri.—A good shrubby sort with large violet tubular flowers. Requires a warm situation in well-drained soil.

P. secundiflorus.—Erect and slender to a height of two feet, with gray leaves, narrow and smooth-edged. Spikes of blue flowers.

These are not a tithe of what Pentstemon offers us; they are probably not even the best. Here is a field for adventure and research by which the gardening world would benefit enormously. (All the Western sorts that I have tried so far have proved hardy save California Blue Bedder, and this was in bad shape when it arrived.)

PHLOX is another race of Americans from which the rock garden

draws some of its most valued treasures. A few are in quite general use but the great mountain ranges of the West are starred with many precious forms that have not yet been seen in gardens. "That we should sit contented with Vivid and G. F. Wilson among the Phloxes," wrote Mr. Farrar, "makes one ashamed, as one goes through the long list of exquisite and longed-for alpines that are still vainly offering themselves to us on the desert mountains of America." Mr. Farrar would have added astonishment to his shame could he have known how long Americans have sat contented with the common magenta form of *Phlox subulata*, very largely, not lifting their hands nor even their voices toward the acquirement of those treasures of our own mountains. In Mr. Farrar's "English Rock Garden" he lists fifty-two distinct species. That I know so few of them is a matter for both regret and real humiliation. Why should our gardening brethren across the water know so much more of our flora than do we? The tall Phloxes of the borders have, of course, no place in the rock garden. But smaller species are many and most highly desirable.

P. amoena.—One of the best, making a bushy mass of slightly downy leaves and stems to a height of six inches, and breaking forth toward the end of April in a profusion of round rose-pink blossoms in clusters. A good and easy plant in any sunny, well-drained position. Effective massed near *P. subulata* G. F. Wilson. *P. amoena* is found on dry hillsides of Virginia and southward. Also in Pine woods.

P. argillacea was introduced by Mr. Willard Clute some years ago but has not made its way very far into gardens, at least in the East, nor is it described in the latest edition of the "Cyclopedia of Horticulture." I had some plants of it several years ago from the Palisade Nurseries, Sparkill, N. Y., and they are still offering it. It is quite worth adding to the collection of rock plants, growing about ten inches tall and bearing a head of soft lavender flowers, something after the fashion of *P. carolina* as to habit. Sun or partial shade.

P. carolina (*P. ovata*) is found in open woods of Pennsylvania to North Carolina and southward to Alabama. It is a fine handsome sort, forming mats of dark leaves from which arise sturdy stems to the height of a foot carrying panicles of bright pink blossoms toward the end of May. Will grow in sun or shade but dislikes extreme damp.

P. divaricata (*P. canadensis*) is to be seen in many gardens and rock gardens where it grows equally well in sun or half shade. Its clouds

of smoky lavender blossoms, delicately fragrant, appear here about the first week in May forming many charming associations. One of the best is where it crowds about a colony of *Tulipa sylvestris*. The variety *Laphami* is somewhat more compact in habit and larger of flower, and I have from the Northwest the beautiful pure white sort that is a choice treasure. It grows naturally in rather damp woods in many parts of the country, but thrives as well in sunny borders. Likes a light rich loam.

P. Hoodii.—This is one of the treasures that hides in the far West. Last year I had some nice cushions of it from my Western friends, but they did not live. I shall hope for a next time and better luck. It is described as neat, small, dense, with a woody base, intricately branched, very compact, and covered with white stars.

P. multiflora I once had from Mr. Andrews but lost it in moving from the old to the new garden. It is low and creeping and very starry with magenta-pink blossoms of a good clear tone.

P. pilosa is a little in the way of *P. divaricata,* but the flowers are rather poor in colour—a weak magenta. There are improved forms of this species offered in England, but they are not for us—yet. *P. pilosa* is a native of dry Eastern woods.

P. reptans (*stolonifera* or *verna*).—A fine prostrate kind, trailing long branches over the ground that root as they go, from which arise leafy stems to a height of six inches carrying a careless head of charming bright pink blossoms in early May and again sometimes in the autumn. I have a similar kind the blossoms of which are a very poor magenta. I think this may be *procumbens,* and if so is being offered by some dealers as the much more attractive *reptans.* Fairly good soil and shade for part of the day. I have also a lovely lilac form.

P. Stellaria is a delight—a good deal in the fashion of the subulata Phloxes, but forming a taller mound, more loosely woven, and quite lost under its cloud of pale French-gray stars in early May. These stars are large and each petal is deeply notched.

P. subulata.—There are now many fine named forms of this little native plant, but they are much less seen than the common magenta form that is planted recklessly in every rock garden regardless of the hue of its neighbours and therefore oftener stirs up trouble than not. But the improved forms are among the most delightful, easy, and useful of the rock garden's furnishings, spreading sheets of entrancing colour for a long time in April and May, and covering earth

and rocks with a gray-green mantle for the remaining months. Some good kinds are:

Daisy Hill.—Bright magenta flowers with dark eye. Larger blossoms than the type, but otherwise no better than she should be.

G. F. Wilson.—One of the most beautiful, with large soft lavender flowers. Quickly makes fine masses and is vastly becoming to any plant that it is near.

Nelsoni (probably *nivalis*).—Makes a close moss-like covering for earth or stones, much more compact and slow growing than other subulata forms, and incredibly starred with white blossoms in May.

The Bride.—Charming sort, white with pink eye.

Vivid.—Beautiful, clear bright pink with no hint of magenta. Close, low moss-like growth but less vigorous than other forms. I have a form given me years ago with paler pink flowers—soft blush—and the same habit of growth. It is very beautiful but has increased slowly. I should like very much to have its name.

PODOPHYLLUM *peltatum.*—Our familiar May-apple may find a place in some shaded corner of the rock garden.

POLEMONIUM, a race of beautiful plants, largely American, running to lovely blues as to colour, with good white-flowered forms and some with pale straw-coloured blooms. They are very easy to raise from seed, but one or two are difficult to establish.

P. carneum is in my garden but I have not yet seen it in flower; Mr. Hinckley writes me that it blooms in his garden the middle of May, coming out white, but soon turning pink, "a queer transparent flower." Its ferny growth is said to become over-luxuriant for the rock garden, so it should be placed where it may have the required space.

P. coeruleum, the Jacob's Ladder of gardens, is too tall for the rock garden.

P. confertum is said to be the jewel of the race. It is one of the treasures that we must beg our Western friends to seek out and send us for it grows high up in the Rockies and also in the Sierra Nevadas.

P. confertum mellitum.—Seed of this form I had through Mr. Andrews. It is not easy to grow though it vegetates almost to a seed. The young plants should be handled when very small, and planted out in light soil—not starved, but full of stone chips to insure absolute drainage without root dryness. The north side of a rock seems to

be a good place for them. The plant forms a little clump of ferny leaves, the leaflets much more closely packed than in the other forms —save *confertum*—and sends up slender sticky stems to a height of six or eight inches bearing a close cluster of straw-white tubes. Distinct and attractive.

P. pulcherrimum (*P. pulchellum*, of some botanists).—A most lovely clump-forming plant growing in delicate ferny luxuriance to a height of a foot, and hanging out innumerable wide bells of a most tender light blue. Perfectly easy and amiable. Sometimes known as *P. humile*.

P. reptans has a creeping rhizome, is dwarf, ferny as to leaves, and stages a shower of blue bells in early May, pale blue and flaring. With me it dies down after seeding. Forms a nice clump in time. Native of the Eastern States.

P. Richardsoni is for the garden borders only.

POLYGONATUM.—The Solomon's Seals are well known and may be had of all dealers in native plants. Well-established clumps are of the highest decorative value among the larger stones of the rock garden in shaded places. They ask a deep, rich woodland soil.

POLYGONUM.—I am told there are Knotweeds fit for the rock garden, but I have yet to see one I could trust.

POLYGALA.—There are a few native Milkworts that may suitably find a place in the rock garden. *P. paucifolia*, the Flowering Wintergreen or Gay Wings, is an attractive upstanding little plant found in rich woodlands. It has thickish leaves of a purple tint and rose-purple blossoms. *P. lutea*, of low places in pine barrens, appears very attractive from its portrait. It has heads of orange-yellow flowers.

POTENTILLA.—A vast congregation of weeds, border plants, shrubs, and a few undoubted treasures. I list only such kinds as seem to me worthy a place in the rock garden.

P. alba is a highly desirable species developing into a good gray mat, but never rankly pervasive, that clouds itself over in spring with pretty strawberry-blossoms, and continues to be blossomy right up to freezing weather and sometimes beyond it. For a sunny spot in ordinary soil.

P. ambigua.—A good and friendly sort, creeping about in any sunny open spot and bearing many large golden blossoms on short stems all through the summer.

P. appenina.—A small, desirable tufted sort of which we may procure seed.

P. calabra is chiefly valuable for its silvered leaves, the yellow blossoms being of small account. For a sunny, well-drained spot.

P. crinita.—An American species growing a foot tall, with whitish foliage and yellow blossoms. Not choice.

P. fruticosa.—This shrubby species is a troublesome weed in parts of the East, its spreading hordes of strongly rooting bushes very difficult to eradicate. It is a good shrub for the rock garden, however, and has several really choice forms that are even better. Some of these are offered by R. & J. Farquhar of Boston. *P. Friedrichseni* is a hybrid between *P. fruticosa* and *P. dahurica.* It is very desirable, a quite charming little deciduous shrub for the rock garden. Offered by Mr. Farr of the Wyomissing Nurseries.

P. nepalensis.—Handsome, but too large for rock gardens.

P. nevadensis is a small, lovely golden-flowered sort from the Sierra Nevada Mountains. This we should have.

P. pigmaea (*P. rupestris pygmaea*).—A delightful, small thing, tuft-making and thrusting up a fountain of pretty white flowers all summer and autumn. Give it a pleasant nook well in the sunlight.

P. pyrenaica is more suitable for the hardy borders or for the rougher parts of the rock garden. Yellow flowers.

P. rupestris grows a foot tall and bears many white flowers—a lovely species.

P. nitida is a beauty forming mats of silver trefoiled foliage with masses of wide pink single blossoms. Seed of this may be had of the Floraire Nurseries, Geneva, Switzerland.

P. Tonguei makes a fine tuft of strawberry leaves from whose midst arise on short stems a mass of apricot-colored blossoms, very gay and pretty. Long runners are also sent forth and these carry the bright blossoms far from the parent tuft and in among the foliage and blooms of other plants. Blooms all summer. Sunny position.

P. tridentata is a little native shrubby form, sometimes only a few inches tall, sometimes taller, that bears white flowers in summer. A neat little bush. A sunny position among the stones.

P. verna nana is one of the vivid enjoyments of the rock garden; neat, green, spready, compact, and low and bearing early in May a great and smiling abundance of bright golden flowers on short stems. For a sunny position where it may be seen by all.

PRIMULA (see Chapters IV and V).

PULMONARIA is here represented by two charming plants, neither of which is seen as often as it should be, for both confer a most gracious beauty on the spring garden, and both are easy to cultivate.

P. angustifolia (*P. azurea*) should be planted in masses by all who love blue flowers. By mid-April the plants present a wondrous expanse of gentian blue that continues for full three weeks. Lovely with pale star Daffodils and *Arabis*. Grows about a foot tall, the leaves dark green and rather hairy. Loves a rich soil, a cool aspect, and division every two years. Lungwort is the common name.

P. saccharata is the Jerusalem Cowslip or Spotted Dog of old-fashioned gardens. Its broad, shining green leaves are clearly mottled with white. It makes a fine ample tuft from whose foot-tall stems depend charming pink and blue blossoms in great profusion. Likes a cool place.

PYROLA.—Low evergreen plants of our woods and bogs, West and East, flowering in summer. They require a rich vegetable soil—leaf-soil, rotted pine needles, and other decomposed vegetation—and a shaded position. Do not attempt these plants unless they may be given the proper conditions, for they will not grow in the ordinary soil of the rock garden.

P. asarifolia is a Western bog plant with dark shining leaves and nodding pink bell-like flowers on a slender stem. Fragrant. (This plant is said to grow in parts of the East also and not always in bogs.)

P. elliptica, the Shinleaf of our Eastern woodlands, has rounded spoon-shaped leaves and fragrant white waxen blossoms on a five-inch stem. Flowers in summer and is the most familiar of the Pyrolas.

P. rotundifolia is a showier plant than the last, the leaves a darker green and rounder and thicker, the flowering scape longer, and nodding waxen flowers sometimes tinged with pink. A plant of dry woods where the soil is acid.

P. uliginosa is another bog species with pinkish flowers. Very pretty.

There are other Pyrolas to be found in the Eastern woods, and a little plant closely related to them and well worthy a place in the wood or rock garden is *Moneses uniflora*, a most delightful small thing whose stems carry a single nodding waxen bell. Grows in mossy woods West and East.

PYXIDANTHERA—*P. barbulata* (Pyxie Plant) is the fairy of the pine barrens. For long it has resisted the advances of gardeners, dying always in captivity. We now know that it is an acid-soil plant and it is to be hoped that none will bring it from its natural haunts who is not prepared to give it the soil that is necessary to its very life. Dr. Wherry tells me that Pyxie grows in his garden where the soil has been properly prepared. In its chosen haunts it lives with gay and ardent enthusiasm. It takes the place of the Hepatica in the silent woods of the Pine Barrens, shining forth in innumerable gleaming stars very early in April. It grows, I read, in either wet or dry places, but always in the white sand, "sometimes forming patches a foot in diameter, with little sprays trailing off from the main colony each lined with the little round-petalled flowers." How charming they must appear in the still brown woods.

RAMONDIA—*R. pyrenaica.*—I have not grown this interesting mountain plant, but it is now offered in this country. It is said to require a shaded spot in light, damp, well-drained peaty soil. It is unable to endure the direct rays of the sun, nor does it wish moisture to lie about the large flat rosettes of hairy leaves. A good plant for a vertical fissure facing north. The blossoms are purple. Said to be easy from seed.

RANUNCULUS is a large genus that contains many undoubted weeds as well as many charming plants for considered positions in the garden and rock garden. They come very slowly from seed, but that is the only means by which we can obtain the beautiful mountain species of other countries than our own. Our own West country has numerous fine forms that should be brought within our reach. I have one quite pretty sort sent me from Dakota that creeps about in a low part of the rock garden and bears light yellow, lacquered blossoms for a long time in spring.

Of beautiful foreign sorts that we should try from seed are, *R. aconitifolius, R. alpester, R. amplexicaulis, R. glacialis, R. montanus, R. pyrenaicus,* and many others.

RUTA—*R. patavina.*—An inconspicuous but quaintly attractive small Rue, with slender shoots clad in gray leaves that spread prettily over a warm rock, and adorn themselves with small yellowish blossoms of little consequence during the summer. For a dry, well-drained spot.

SANGUINARIA—*S. canadensis* (Bloodroot).—One of our most

beloved wild flowers, and every garden worthy the name should give it an honoured place. It is quite as beautiful as anything of its season, and grown in masses is as effective as Daffodils or Tulips. It is fine grown near the blue drifts of *Pulmonaria azurea*.

SANTOLINA.—Gray, shrubby plants for walls and hot exposed positions in large rock gardens. The Lavender Cottons should be given a good cutting-over when they become poor and leggy.

SAPONARIA, or Soapwort, offers a few good plants for the rock garden, chief among which is the invaluable trailing

S. ocymoides, with its showers of gay pink blossoms in May and June. To show its true quality and generosity of blossom it should have a sunny position in good soil and a rock to tumble over. Easily raised from seed but there will be great choice among the seedlings as to colour, some being far superior to others in their clear rosiness. There is also a white form.

S. caespitosa of the Pyrenees is a far less kindly creature, and my personal encounters with it have met with failure. It is a high mountain plant with a woody base, sending up reddish stems carrying bright pink flowers. Probably requires a very well-drained soil in full sunshine.

SATUREIA.—All the little aromatic things—Thymes and Mints and Marjorams and these Savouries—have a strong appeal for me. It is pleasant to work among them, inhaling the quick fragrance that is released at a touch. They all love the sun and the lightest soil and a position where the wind blows freely about them. The Savouries form nice little bushes, attractive to the eye and to the nose. Any that you can get will be a pleasure, even the common Savoury of the herb plot, *Satureia montana*, is quite good enough for the rock garden when it covers its bushy circumference with a cloud of white blossoms. An occasional clipping will keep it in good form. This is easily raised from seed. Other desirables are, *S. pygmaea*, a dwarf little bush with dark fragrant small leaves on wiry stems and clouds of pale violet blossoms in the late summer; also *S. diffusa*, *S. spinosa*, *S. rupestris*, *S. stenophylla*, and numerous others.

SAXIFRAGA presents an immense field of beauty and interest that is almost wholly closed to the American rock gardener at the present time. The quarantine prevents our importing plants, our nurseries are ill-supplied with them, if supplied at all, and to raise them from seed is slow, and a matter for a good deal of skill and care.

Curiously, this great family is one from which we, feeling our way step by step in this—to us—new phase of gardening, have stood away in awe. They have appeared to us as difficult high alpines, only to be approached by the most skilled and never to be quite reconciled to our trying climate. Here and there in private pre-quarantine gardens one sees a small collection; a few enterprising nurseries offer a limited number of species. As a matter of fact a large number of the Saxifrages are not difficult to grow at all; are no more fastidious or demanding than hundreds of other plants over which we spend much labour and thought. With a little understanding of their needs they are most hearty and responsive, and there is a special quality of charm and beauty about them excelled by few of the small mountain plants. A story was told me in England of an American who, when he first saw the Saxifrages in English gardens, was so charmed by them that he at once ordered several thousands of them sent home to his estate, not realizing that any special preparation of soil was necessary for their welfare, or that any difference existed between them as to ease of culture. They perished to a man. Choice rock plants are not to be dealt with in such wholesale fashion—each is an individual with its special needs. My experience of the Saxifrages has perforce been exceedingly narrow, but those that I have been able to procure have not proved difficult, and when one has seen them edging flower borders and carpeting rose beds as in England one realizes that a few at least are not fussy or fastidious at all.

Of course there are many rare and difficult Saxifrages; the whole Kabschia section must be so described, and there are others also, but we in the U. S. A. need not at the present time consider these at all, for they are denied us unless we can raise them from seed.

The great race is divided by botanists into many groups. But so great is our poverty in Saxifrages at the present time that we need not concern ourselves here save to say a word as to the difference between the Mossy and the Encrusted species. The Mossies are entirely enchanting; they form a green and lovely moss-like growth—mounds and hillocks of it—and in early May send up a veritable forest of slender stems a few inches tall bearing large round blossoms, white, blush, pink or crimson, inexpressibly dainty and fairy-like. These grow perfectly well in the ordinary soil of the rock garden—gritty and free—but I find they like a rock between them and the burning southern sun. In the autumn they appreciate a dressing of

sandy soil and leaf-mould rubbed in between the growths, and occasionally when the central portion of the hummock lifts itself away from the soil it is necessary to take up the whole plant, break it up and replant. Any you can get you will enjoy. Mrs. Wolcott has the best commercial collection. The Logan Nurseries also offer a number. Those I have found the easiest have been forms of *S. decipiens, Rhei,* blush-coloured, Guilford Seedling, crimson, and others. *S. Wallacei* is also a beautiful and willing Mossy growing into magnificent mounds and spreads of the richest green and bearing innumerable white blossoms for a long period.

S. ceratophylla is a less choice but entirely amiable sort that any one may grow in almost any position. It is offered in this country under various more august names but may be known by its mats of "fine shining foliage, finely divided, and curly like a stag's horn." The blossoms are white and many, and the green growths may be endlessly detached and replanted to increase our store.

The Silvery or Encrusted Saxifrages form rosettes of thick leaves, gray, silver-green, bluish, and varying in the different species as to size, the shape of the leaves and the amount of silver encrustation. Many are very beautiful—quite beautiful enough to be cherished for themselves alone without the further adornment of the tall stems bearing great loose sprays of starry blossoms, white, creamy, pink, that arise in the late spring from the crowding rosettes, amazing us by their airy grace and loveliness. They are among the garden's best displays, these and the gay and fairy-like Mosses.

Those that are in my garden are thriving in a deep gritty loam and sunshine, though not in a position where they may be roasted alive. There is always a rock between them and the full force of the sun's rays, while not depriving them of its genial warmth. They all require to be planted firmly—wedged in so that they may at once feel secure and safe—and it is well to top-dress the ground about them with stone chips to keep them out of the damp. A few good kinds are available, and these we must make the most of until we can increase them in number and variety by means of seed. The species at present growing in my garden and offering no difficulty in the way of culture are: *S. Macnabiana, S. aizoon* and *S. aizoon rosea, S. Engleri, S. Andrewsii, S. longifolia cochlearis, S. lingulata, S. Hostii, S. Cotyledon.*

To raise Saxifrages from seed it is best to sow the seed upon the

surface of a pot or pan of very fine sandy soil, not covering it at all. Place over the pot a piece of paper to insure darkness and to stay evaporation of moisture. The seed germinates readily, but it requires patience and skill to bring the tiny plants through the dangers of a long infancy to the point when they are ready to flower. But it may be done by the keen and careful.

SCABIOSA—*S. pterocephala* is a pretty, if inconspicuous, member of this attractive family. It forms small mounds of gray-green foliage and bears pale lavender Scabiosas, pretty and dainty but adding little to the gaiety of rock gardens. It is for a sunny position, insured against damp. Three inches.

SCUTELLARIA.—One had better begin with a warning against these too amiable and willing plants, for they usurp more than we are willing to give them, and must be put in a place where they can do no harm if they are used at all. They bear spikes of blue blossoms at a time when the colour of the rock garden is beginning to dim, so they have their value. *S. alpina, S. hastata,* and *S. baicalensis* are perhaps the best of them. They do not grow taller than a foot in height and they like dry sunny places.

SEDUM is a vast entanglement. There are innumerable kinds, many bearing so close a resemblance one to another that they are not to be differentiated by the lay eye. The nomenclature, between botanists, gardeners and cataloguists, is in considerable confusion. We have now a court of last resort in the great Sedum Monograph of Mr. R. Lloyd Praeger in the "Journal of the Royal Horticultural Society," May, 1921, but so slight are the distinguishing points between many of the kinds that the amateur is apt to be plunged into greater doubt and difficulty by its perusal. However, light is there for the patient student, and gradually our Sedums will become disentangled and we shall be able to call them correctly by name. Meanwhile, they are a most useful race: hardy, free, long-suffering for the most part; and though they are typical rock plants in appearance, low and spreading, most of them will grow anywhere in sunshine. As a race they are not marked by great beauty, but here and there one emerges from the crowd that is both lovely and distinct.

Most of the Sedums seen in American gardens are of foreign origin. For though there are a great number of native species that compare most favourably with the foreigners in point of looks they are quite generally without honour in their own country, and have but recently

begun to appear in the lists of some plant collectors. A few of the insatiably curious are growing these Americans and finding them quite delightful, though not quite as "easy" as the familiar kinds. Many of them prefer a shaded position, some even enjoying a damp one. Mr. Purdy offers a long list of Western species, and though all are perfectly hardy that I have thus far grown, they are quite intriguingly difficult and have no mind to save the day for the careless gardener who lets his choice plants die and endeavours to hide their graves beneath a covering of ramping Sedums. The Westerners are doubtless to be won, but we have a good deal yet to learn of them. Sedums are for the most part summer- and autumn-blooming.

Exotic Sedums

S. acre, the little Wall-pepper, is a naturalized American citizen. It may be seen creeping about in the neighbourhood of most old gardens, covering walls or banks with its green-gold bloom for a long time in spring and summer. An inch or so high and fast creeping.

S. album is one of the most wildly ramping of its kind and one of the prettiest. It should not be allowed in the rock garden, for it grows at a furious rate, tumbling over all in its path and obliterating all trace of them, while every smallest bit of it that is detached from the mass by wind or rain or trowel, starts a new colony. But *S. album* is a jewel for an unconsidered spot. In poor gravelly soil it grows very dwarf and compact and in spring its fat leaves turn a splendid burnished red. Toward the middle of June the whole plant is lost beneath a foam of white stars. It is very pretty and does not deserve its unpleasant name of Worm-grass.

S. Anacampseros is interesting only to the collector. No stretch of the imagination can call it handsome. It has prostrate naked shoots finished with a lumpish wad of foliage, and in summer manages to send out a spray of dull pinkish-purple stars. Evergreen Orpine.

S. anglicum, on the other hand, is very pretty, a little low mass of grayish fat leaves on two- or three-inch stems and a great quantity of gray-white stars in summer. If not absolutely hardy here it self-sows so freely that one does not need to worry about keeping it. It is a native of Britain. Troublesome among small choice plants.

S. brevifolium.—A tiny and choice thing; very bright green leaves sometimes flushed with purple, very small. Makes a close, spreading mat, and sends up many slender stems bearing white stars with

purple anthers and a purple spot on the petals. Not reliably hardy with me.

S. caeruleum is a delightful annual kind with masses of low bright green foliage, fat and succulent, and starry light blue flowers.

S. cyanium I once had but have lost. As I remember it there was no great beauty to it; the foliage grayish, the blossoms pinkish. It did not correspond with the attractive species described by Mr. Farrar under the name.

S. dasyphyllum is a most lovely and choice sort, the leaves like little gray beads strung on slender two-inch stems; the blossoms pinky-gray stars that look like the finest enamel-work. Second and third week in June. May be allowed in the most lofty company.

S. Ewersii is another fine and restrained species. Its stems trail and are adorned with large flat rounded leaves of a most delightful soft gray. Its blossoms, that come in late summer, are a rich crimson. One of the best.

S. glaucum (*Hispanicum*).—A small annual or biennial that goes and comes in my garden. It is not more than two inches tall, its leaves gray and its creamy-white blossoms have black anthers.

S. ibericum (See *S. stoloniferum*).

S. kamschaticum is a handsome semi-prostrate plant with thick dark green leaves and dense heads of orange-coloured flowers in late summer. Requires space. There is a variegated-leaved form.

S. lydium is but a few inches high, making a dense flat mat of short shoots set with fat little leaves something after the manner of *album* but smaller. The plant is almost hidden beneath its mass of pinkish blossoms in summer. Though small it spreads widely.

S. Middendorffianum is attractive all the year. Narrow, reddish leaves on semi-prostrate shoots. Yellow flowers in June. Six inches.

S. oppositifolium is hardly to be distinguished from *S. spurium.*

S. pilosum is quite the gem of the race so far as I know it. It forms small downy rosettes, stout and green, out of which arise sturdy, leafy stems to a height of two inches carrying a head of pure pink blossoms without a hint of the purple pigment that clouds the blossoms of most of the race. June. It is, sad to tell, a biennial, but so easy to raise from seed that one may always have it at the cost of a little trouble. With me it has not self-sown. A hot position.

S. populifolium is a distinct sort, rather shrubby, like a little bush, upright and stiff, set with many bright green leaves like miniature

Poplar leaves. I have had it many years but it has never vouchsafed me the Hawthorn-scented white blossoms it is said to bear from June to September. Seems hardy, but its little twigs are sometimes nipped back. One foot tall.

S. reflexum.—A larger plant than S. *rupestre* but of the same fashion. A quickly spreading form with yellow flowers. Neither distinct nor of any special beauty. There is a curious crested form with thickened masses of leaves like a green coxcomb. Mr. Farrar gives this as a form of *rupestre* and calls it *S. Crista-galli.* It is not beautiful—merely interesting.

S. Rhodiola, the Rose-root, is a tall form—nearly a foot tall—with fat gray leaves and yellow blossoms in the late summer. The thick root, if bruised, gives forth an odour remotely resembling that of Roses. Interesting only to the collector.

S. roseum is a fine dwarf species that I do not now possess. It makes fine, advancing mats an inch or so high enveloped in summer in a cloud of pinky-white stars. Very good. *S. Rhodiola* is offered in some catalogues as *S. roseum.*

S. rupestre is a quickly advancing low sort, glaucous with masses of yellow stars, in curiously shaped sprays on five- or six-inch stems. Good for old walls and unconsidered places. There is a good compact form of this.

S. sarmentosum is a beautiful creeping sort for a hot wall face, where it clings closely, making a fine bright green covering. The yellow flowers are of small account and the plant is too rampant for a choice place in the rock garden. But it is one of the best of the rampers, and should find a place somewhere. A Chinese species.

S. Sempervivum makes rosettes like those of its namesake, but there the resemblance ceases. This plant is a rather tricky biennial—fairly easy to raise from seed but not always flowering save under conditions exactly suited to it. It desires light and heat and a gritty, well-drained soil. I have had many plants that gave up the ghost without flowering at all, but when it does flower the reward is exceeding great, for the blossoms that are bell-shaped and carried in a wide spray are an amazing, bright clear red. It is a true alpine.

S. sexangulare.—Very like *S. acre* but larger in all its parts.

S. Sieboldii has procumbent stems set with beautiful gray leaves, rounded and thick. Its reddish blossoms are most valuable in the autumn rock garden. Evergreen and not as hardy as some. Japan.

S. spectabile.—The well-known showy Stonecrop is too tall for any but very large rock gardens. There are numerous improved forms of it.

S. spurium is one of the most useful, as well as exceedingly handsome for all sorts of places outside the territory of the most choice and lofty. Makes fine prostrate masses and bears in late summer clusters of old-rose stars, or pinky-white ones for a long time. It will grow in sun or shade, rich or poor soil. Every piece will root if stuck into the ground. Requires space.

S. stoloniferum (*ibericum*) is very near it and has the same uses though it is said to prefer dampish places. Not sure I have ever had the true plant.

S. turkestanicum has been offered in this country, but I have never seen it.

Native Sedums

S. divergens (Purdy) is a close-creeping plant seemingly made up of green beads strung on reddish stems. Not over-vigorous, but hardy. Have not seen it flower. This is not the plant described as *divergens* by Farrar. Western mountains.

S. Douglasii.—Mr. Purdy gives this as a mossy type, but my plants correspond to the description given by Mr. Farrar, though not quite so tall. About six inches tall, "with flat leaves set up the stems and keeled beneath"; with open sprigs of yellow stars late in May. Said to belong on dry hillsides or open places among limestone rocks. An attractive sort.

S. Jepsoni (Purdy) has huge fat leaves in a rosette. Got through the winter but died of the memory of its hardships.

S. Nevii is a most attractive Eastern species that should be in all gardens. It is a true rock plant, low and spreading conservatively, with grayish foliage and white blossoms toward the end of May or early in June. It likes a shady position where the soil is dry. Virginia, Missouri, and Alabama.

S. obtusatum came from Mr. Purdy, a fine bright green sort, low and stout. It weathered the winter but I never saw it bloom, for vandal hordes came down and overwhelmed it when my back was turned. The flowers are said to be yellow in summer and the foliage turns bronze in winter. A very good sort, I should say.

S. oregonum is so far the most amiable of the Western species that

I have tried. It has more the staying powers of some of the exotics in the face of untoward circumstance. Its fat foliage is a vivid emerald green, the plant growing to a height of but a few inches and spreading after the manner of the more conservative of its kind. Its yellow flowers are of small account. Sun or part shade.

S. pulchellum is, I think, quite my favourite among Sedums. It is an Eastern species, biennial or annual, but self-sowing freely. It is a charming and distinct sort, appearing when full grown like a tiny emerald green spruce tree, but presently toward the middle of May it hoists over its head the most fetching large pinky-lavender umbrellas, three-cornered in shape, and where the plant grows thickly, as it does when it finds a congenial home, the effect is most delightfully airy. Dr. Wherry found it in Virginia growing on a cool limestone ledge, but I find it springing everywhere in the rock garden that the seeds have been blown by the wind or washed by the rain. The biennial Sedums have all, curiously, more real beauty than the perennial species.

S. Purdyi, I have not yet had. Mr. Purdy describes it as having "densely crowded leaf rosettes which throw out red threads at the end of which are tiny plants." California.

S. spathulifolium.—I have seen this Westerner doing very well in other gardens but it has not prospered in mine. It has fat leaves that show fine tones of red and crimson at certain seasons and yellow flowers in spring. The leaves when not red are a pleasant blue-gray. An attractive sort.

S. telephioides blooms in the late summer and autumn. It has very brittle, slender stems up to a foot in height and heads of white flowers. Grows on rocks and cliffs in Pennsylvania southward and west to Indiana. Valuable for its late bloom. A rather frail species having none of its European relative's (*S. telephium*) peasant sturdiness. The latter abounds in some parts of the East and is called by children Pudding-bags.

S. ternatum is the earliest Sedum in my garden to bloom. It is found in Virginia and southward (said also to occasionally be found in New York) on rocky, wooded hillsides. It is a low sort—three to six inches with attractive gray-green wedge-shaped leaves and many white stars in early May. One of the best native Sedums.

S. yosemitariensis I had from Mr. Purdy; a few rather large fat leaves that I cherished for a season or two without arousing them

to any energy or effort. They were finally swallowed up by an advancing mat of white Thyme and that was the last of them.

The foregoing notes give but a faint idea of the vast number of Sedums that inhabit the world. Others, a goodly number, inhabit my own garden, but nameless, so that I am unable to give them a place here. The native sorts in particular we should know more of. Some of the Westerners may prove most valuable, and in my garden the Easterners have proved themselves decorative and useful.

SEMPERVIVUM is another great genus and belongs to the same order as *Sedum*. Its nomenclature also is a welter of confusion, and its members often so minutely differentiated that for most of us they are one and the same. They all make masses of fleshy rosettes—green, grayish, wine, purplish, sometimes tipped with red or washed with other colour, sometimes woven over with cobweb. They are nearly all handsome and when they flower—sending up fat stalks with wide heads of starry flowers—are interesting. They will thrive in any sunny, well-drained spot, or in sunny walls, or on ledges of the rock garden where few other plants would find a foothold. A good many kinds are offered in this country and any that you can get will prove worth while, remembering always to give them the hottest and most exposed positions in soil that is open and free.

S. arachnoideum (the Cobweb Houseleek).—Small, tightly packed rosettes covered with cobweb. The hottest possible position.

S. Laggeri is a form of the above with larger rosettes.

S. Braunii is a delightful neat sort, with small open rosettes of bright green narrow pointed leaves. The flowers are yellow.

S. Funckii has emerald green rosettes of medium size. Slightly hairy.

S. fimbriatum with looser rosettes and brighter pink flowers than S. *montanum* which it otherwise resembles.

S. Doellianum much like *S. arachnoideum* but a less fine plant.

S. glaucum.—This species has large blue-green rosettes with brown tips. Handsome.

S. globiferum.—Flattened gray-green rosettes with brown tips, flowers yellow.

S. hirtum has hairy, bright green open rosettes, the leaves long and pointed. Makes a fine flat mass. Flowers yellow.

S. montanum is an unattractive sort with medium-sized, dull-green rosettes, increasing rapidly, and dull pinkish flowers.

S. rubicundum is a handsome form with large very flat rosettes, red with green tips and red flowers with a grayish cast. Good.

S. tectorum (Hen-and-Chickens).—Large flat green rosettes lightly tipped with brown. Reddish flowers. This is the common Houseleek.

S. triste makes a very handsome large dark red rosette, open like a Waterlily.

I have numerous other kinds but flounder in a sea of indecision as to their names. Sempervivums are easily raised from seed.

SHORTIA—*S. galacifolia* is a choice native woodland plant, belonging to the Carolinas. It makes a handsome tuft of leathery leaves, rounded and shining, from whose midst arise many stems carrying white bells in May. It requires shade, an acid soil, and is one of the loveliest of our native plants. There is a pink form but I have not seen it.

SILENE is one of the invaluable rock garden families. It contains many small compact plants with brilliant flowers, some of the best of which are Americans. Many dowdy weeds also spring under the name and numerous border annuals. I have mentioned only those species that properly grace the rock garden.

S. acaulis (Moss Campion).—This plant is common in alpine regions both in Europe and America. It spreads a spiny, green moss over the stony ground and stars it with bright pink bloom in June. It is easy enough to grow from seed, easy to keep in light soil in a sunny position, but to induce it to flower freely is quite another matter. It has never done so for me.

S. alpestris, on the contrary, gives of its best in return for a very little consideration. It is a low spreading plant—six inches or so—not mossy but leafy and free and smothered beneath a foam of charming white flowers, starry and with fringed petals. The best patch of this Silene I ever had was growing in dark vegetable soil unmixed with grit in a rather low place. There it rambled into wide colonies and flowered profusely in early summer and occasionally throughout the rest of the season. Easily raised from seed and increased endlessly by division. One of the best plants for the rock garden.

S. asterias is a rather gawky biennial, forming a large tuft of leaves and sending up stems to a height of ten inches carrying a cluster of crude pink blossoms. The whole plant sticky. Easy but without distinction. Self-sows.

S. californica.—This species with *S. Hookeri* and *S. laciniata* are beautiful Californians. I have had the two last named with several other mountain species from the same region. All were in such poor condition when they arrived that all my efforts to revive them were unavailing and they passed out. If we could obtain seed of them I feel sure we could count upon their glowing beauty in the rock garden. Mr. Purdy offers *S. Hookeri* and *S. californica,* but it is a long journey for these soft-stemmed plants and they are so deep-rooting that they do not transplant easily. They both make tufts of spoon-shaped leaves, *S. Hookeri* bearing large soft pink blossoms with beautifully lacinated petals; *S. californica* is one of the splendid fiery kinds. They require light shade, a deep vegetable soil, sandy and gritty. *S. laciniata* is also a brilliant scarlet kind. They are all mountain plants and would doubtless be perfectly hardy with us.

S. maritima is not of great value; a lax, careless thing throwing its shoots about over the ground and producing untidy-looking blossoms that have none the less a certain charm. There is a pink form, less attractive, and a double-flowered form. This is the Sea Campion; will grow in any sunny position and is easily raised from seed.

S. monarchorum.—Mrs. Wolcott offers this variety. I have not had it. Said to be very dwarf, and for a position among cool rocks. Flowers white.

S. pennsylvanica.—Our so-called "Rock Pink" is one of the beauties of the family. It grows freely among the rocks of Westchester County, making explosions of brilliant pink blossoms from its tuft of narrow leaves toward the end of May. Collect a plant or two and then raise as many as you like from seed. Hereabouts it grows under trees—even under Hemlocks—its long roots entrenched in crevices of the rocks and seedlings coming up in the grass thickly. But the finest clumps I have ever seen grow in a friend's garden in full sunshine in black vegetable soil unmixed with grit. Why this beautiful native rock plant is not offered by our nurseries is a mystery.

S. Saxifraga is a frail plant in appearance, making a low green growth and sending up many small white flowers on wiry, sticky stems a few inches tall. Any one may have it from seed.

S. Schafta.—The value of this plant lies in its late flowering. In the late summer and on through the autumn its tuft of rather soft dull-hued leaves is almost hidden beneath the profusion of crude pink blossoms set in dark calices. It is an easy plant for any sunny

position and comes like Cress from seed. Its root, once started, goes to China, so transplant while young.

S. virginica.—Our Fire Pink that flames on dry hillsides of New Jersey and southward is a splendour to cherish. It makes a tuft of spoon-shaped leaves and sends up stems to a height of eight or ten inches carrying an open irregular spray of enormous burning scarlet stars that continue to flash before our fascinated gaze from June almost through the summer if seed is not allowed to form. It is considered a difficult plant to grow, but given a dry situation, well-drained and poor, and wholesome neglect there is no manner of trouble in keeping it. Some of my plants are fighting for their lives amidst other encroaching plants—Quaker Ladies, Violets, and pressing masses of *Sedum pulchellum*—but seem entirely unperturbed and in the best of health. This is another plant that we should be able to have of all our nurseries that deal in rock plants. It self-sows here.

SISYRINCHIUM.—Though this race belongs mainly to our own country none of its members are to be found in the catalogues of our nurseries. Some of us know the little Blue-eyed Grasses in the wild, but they are seldom found in gardens. They are little grass-leaved plants, taking rather to cool places, with blossoms of various tones of blue. Some that we should ask for are, *S. grandiflorum, S. filifolium,* and *S. gramineum, S. montanum, S. atlanticum.*

SMILICINA.—*S. racemosa* (*Vagnera racemosa*—False Solomon's Seal).—A graceful, native woodland plant for bold rock work in shade. *S. stellata* is considerably dwarfer. Something in the fashion of the true Solomon's Seal, but with a plume of creamy blossoms terminating the wand-like stem, followed by a cluster of berries. *S. trifolia* is a still smaller sort, growing only four or five inches high with its tiny plume of stars in May. Rich woodland soil.

SOLDANELLA.—*S. alpina* is now offered in this country. I have not grown it, but Mr. Farrar says it is both hearty and immortal. It is a true alpine, with round thick leaves forming spreading tufts whence spring pale violet fringy blossoms in early spring. Its portraits make it a most entrancingly beautiful plant. Moist, cool soil, gritty and free.

STACHYS.—*S. corsica* is a most delectable, bright green, small thing that spreads over the ground in little mats and hummocks an inch or so high and covers itself with a glory of small pink blossoms very pleasing to the most exacting eye. No more charming ground-

cover could be found—save *Veronica repens*—and I am not yet ready to lay my repeated failures to hold this little plant over the winter to a tenderness of constitution. I have not yet given it the very dry, well-drained, and sunny position that I feel sure it demands, having got a mistaken idea that what it wanted was a low damp spot. It is easily raised from seed, so one may experiment indefinitely. Flowers the first year from seed.

STELLARIA.—There are various forms fit for unconsidered places, but none for careful neighbourhoods. They will grow in shade and form masses of lax foliage powdered with a multitude of white stars. Stitchwort is the common name.

STYLOPHORUM—*S. diphyllum.*—I grew this large American Celandine for a time but lost it without regret. It is not a good enough plant for the rock garden. It makes a bushy plant a foot or more tall and bears in summer a long succession of yellow flowers. For shaded places.

SYMPHYANDRA is a good deal in the way of Campanula, but lacks the indefinite something that makes the latter one of the supremely fascinating and desirable races for the garden. They are easily raised from seed. They love light soil and open places in the rock garden and bloom in the late summer, which gives them an especial value.

S. armena I once rejoiced in, but have lost. It grows eight inches tall, and hangs purple bells from lightly arching stems that spring from a tuft of heart-shaped leaves.

S. Hoffmannii has long been a resident of my garden though it is a biennial. It is a handsome plant with thin shining leaves, a bushy habit, and growing about eighteen inches tall. Its white bells are hung out in a long succession during the summer. Is supposed to prefer shaded places but the seedlings spring up and thrive in all sorts of situations. A good and hardy plant.

S. pendula is praised and offered by Mrs. Wolcott. I have not seen it.

SYNTHYRIS.—I mention this race because while it is wholly American, according to Mr. Farrar, and well suited to considered positions on the rock garden, neither hide nor hair of it is to be discovered in our catalogues, nor in any book on American alpines in my library. According to the "Standard Cyclopedia of Horticulture," *S. reniformis* grows in Washington and Oregon and *S. rotundifolia* in Oregon.

They are mountain plants and thrive easily in cool places on the rock garden, flowering early in lovely violet flowers from a tuft of leathery leaves. Surely we should have these plants, or at least seeds.

SYNDESMON.—*S. thalictrioides*, Rue Anemone (see *Anemonella*).

TEUCRIUM.—*T. chamaedrys* is good for a hot wall; a spreading plant a foot tall with small wine-coloured blossoms in little whorls. It will also occupy a dry unconsidered place on the rock garden. Seed.

T. pyrenaicum is a prostrate plant with small violet-and-white blossoms. To be raised from seed and quite pretty for a dry, sunny position.

THALICTRUM.—Most of the Meadow Rues are too large for the rock garden, but *T. minus* is a lovely little fine-leaved plant for low corners, and *T. alpinum*, ten inches, may also be included. *T. dioicum* is a native form attractive in a woodsy place but not quite good enough for the rock garden. The blossoms are of no importance.

THYMUS.—The Thymes are among the best beloved, willing and sweet and ready to clothe any sunny, windy spot with pleasant aromatic verdure and a froth of tiny blossoms. They must have sun, remember, and a well-drained spot, and they love the wind. They may be used in the chinks of a paved path, to edge sunny borders, in the rock garden, anywhere. The more Thymes you possess the more sweetness will fill your days. Even the common Thyme of the kitchen is a delightful plant.

T. azoricus is a little low shrubby sort—five inches—with masses of purple flowers in summer.

T. Serpyllum is the Wild Thyme. It has innumerable creeping varieties—all delightful. *T. S. album* is my favourite, making a grayish mat that extends into corners and over hillocks most charmingly and covers itself with white blossoms in June and for most of the summer. But there are also *T. S. micans* with a most delightful clinging growth and pinkish flowers; *T. S. coccineus* with brilliant flowers, and the little Woolly Thyme, *T. S. lanuginosus;* and then, a little taller, *T. citriodorus*, the delicious Lemon Thyme, and numerous others.

TIARELLA.—*T. cordifolia* is a most lovely native for shaded places on rock garden or a wooded corner. Its spikes of creamy-white blossoms—Foam-flowers—are continued for several weeks in the spring. The leaves are rounded and scalloped and the plant, after

blossoming, sends out long runners so that it quickly covers large areas. The plant should be occasionally divided and reset as it tends to die out in the middle. Lovely on a bank flowing from a mass of *Tulipa sylvestris* and *Phlox divaricata*. There is a pinkish form that I have not seen.

T. unifoliata grows in our Northwest, is taller, and does not send out runners after the manner of its Eastern relative. We should have this fine woodlander.

TOWNSENDIA.—*T. escarpa* (the Spring Daisy) is one of the most winning of the wildflowers that have been sent me from the West. It makes a little dusty-looking splash of narrow leaves close upon the ground upon which sits in May the most ample and lovely and innocent pink Daisy with a wide yellow eye. It is perfectly hardy and entirely delightful. It belongs to sunny plains, though it has all the ear-marks of a true alpine. I grow it on a sunny plateau of the rock garden in light soil, and the only service it requires is to be protected from its ramping neighbours that would flow over and devour it.

TRIENTALIS.—*T. americana* is a lowly native woodland plant growing six inches or so tall and bearing above a whorl of narrow leaves a few white flowers. Needs to be seen in considerable numbers to be effective. Grows in moist woods in various parts of the East. May and June.

TRILLIUM offers much beauty and interest to the rock garden or woodland planting. They thrive in shaded places in deep, rich wood's soil and are not difficult, though they somehow contrive to look very choice and aloof. There are numerous beautiful exotic Trilliums, but for the present we must be content with our own great riches.

T. cernuum has wide leaves and white flowers delicately flushed. It is less showy than the others. Called the Nodding Trillium.

T. erectum has red three-cornered flowers in mid-May. It is one of the easiest to grow. Red Wake-robin.

T. grandiflorum is the beauty of the family. Large white flowers in June. One to two feet tall. Flowers in May.

T. erythrocarpum, the Painted Trillium.—White flowers flushed with purple at the base. Cool, damp conditions. Lovely.

T. nivale is a small native only three or four inches tall. White flowers.

T. sessile is a native with reddish flowers.

T. stylosum is a Southern species, hardy, however, in this locality. It has pink flowers. In Small's "Flora of the Southeastern States" twenty species of Trillium or Wood-lily are listed. In how many gardens is one kind to be found? The owner of the shaded garden need not complain while such splendours are to be had.

TROLLIUS.—*T. laxus* is an American Globe-flower that makes a fine rock plant. I collected it in a high boggy meadow in Rockland County, N. Y., and transplanted it to the lower reaches of my rock garden in the common soil with the feeling that these moisture-lovers could not there thrive. But they have far surpassed my brightest hopes, opening their wide creamy blossoms among the crowding Violas and Primroses as happily and abundantly as in that high bog, and giving rise to much admiring comment. This fine native plant should be available to all. It is of iron hardiness and apparently will grow in any location where the soil is deep and not bone dry. It forms a tuft of leaves similar to those of other members of the family and sends up six-inch stems for at least a month, bearing large creamy blossoms—wide open—with a bunch of golden stamens. A treasure.

TUNICA.—*T. saxifraga* is an invaluable rock plant; easy, hardy, charmingly pretty, and it flowers all through the summer, scattering seed the while that promptly springs and makes more gentle beauty for us with no trouble to ourselves. It forms a haze of narrow green verdure over which waves a multitude of small pink blossoms on fragile stems. The whole is not more than six inches, but it spreads out into most gratifying patches a foot or more across. A packet of seed will give you dozens of little plants to set about in sunny places to retrieve the garden from dullness when the dazzling spring display has passed.

UVULARIA is a family of American woodland plants called Bellworts. They grow eight or ten inches tall and have leafy wand-like stems hung with a few large creamy bells, long and rather narrow. The best is *U. grandiflora*, common in the woods in this neighbourhood, but so delicate in colouring and modest of port as to require to be grown in broad colonies if it is to show its quite charming quality.

VALERIANA.—*V. arizonica* is a small member of this border family suited to the rock garden if we can obtain it. It is a native

of our West, springing, according to Miss Armstrong, from the crevices between rocks in moist places. Six to nine inches tall, with heads of small pinkish flowers, smooth leaves, and hollow stems.

V. rotundifolia (*globulariaefolia ?*) is a very small tufted sort that I have grown for a good many years. A little three- or four-inch plant, very modest in appearance, with a rather large head of pale pink flowers. It begins to bloom in May and continues for several weeks. For a dry sunny place. Larger plants soon overcome it, so it must be looked after.

V. supina.—I have not grown this species, but it is spoken of with so much enthusiasm in high places that it should be on our seed lists. Said to be very fragrant. Hot sunny pocket. All the small Valerianas should be seen in patches of at least six or eight if they are to demonstrate their charm.

VERBASCUM (Mullein) is not generally for the rock garden, but *V. phoeniceum,* which comes in soft pastel colours, and grows not more than eighteen inches tall, may be admitted to the less select positions. It appears to be biennial, but keeps itself going by self-sowing in a modest way.

VERBENA has no place in the rock garden.

VERONICA is a race to which both rock garden and border owe much. It is especially gifted in the matter of blue flowers. They are largely sun-lovers and, so far as we have met them, not at all difficult to grow.

V. Chamaedrys is not of the choicest, but an attractive form thriving in any sunny location. It has heart-shaped hairy leaves and bright blue flowers in amazing profusion in early May. Its habit is creeping. This is the Germander Speedwell.

V. gentianoides.—A fine early-blooming sort sending up from rosettes of shining leaves slender stems to the height of a foot terminating in a spike of blossoms the colour of skimmed milk. Its rosettes of leaves increase to fairly large mats, but in a restrained manner so that it is not a menace. Likes a lightly shaded position.

V. incana is good for edging borders or for spreading into pleasant breadths of blue and silver on flat stony places in the rock garden. Its deep blue flower spikes arise in early summer from mats of longish gray leaves and make a fine show. Easy from seed and easy to keep in any sunny place.

V. multifida.—A dwarf offered in this country that I have not seen.

Said to have deeply cut leaves and six-inch flower spikes of pale blue. Spreading.

V. pectinata is one of the useful trailing sorts, but not one to be afraid of. It forms a close mat of silvery shoots that root as they go, and in late May or early June develop sprays of light blue flowers, rather large. Not showy, but a pleasant thing to have about, and a nice cover for small bulbs. Is said to thrive best in shade, but here it grows equally well in sun. *V. pectinata rosea* is also about and blooms earlier.

V. peduncularis makes a little four- or six-inch mound of attractive bronze-green foliage that is starred nearly all summer with white blossoms lined with pink. Caucasus. Sunny situation.

V. repens is a Corsican but quite hardy in our severe climate. There is nothing better for growing between the joints of stone paths, or for making an absolutely flat covering on any part of the rock garden. Its tiny lustrous leaves lie close to the ground, and from early May practically through the summer there are wide pale blue blossoms pressed flat upon the lustrous carpet. A fine ground-cover for small choice bulbs such as *Narcissus minimus* or *N. cyclamineus*. Light soil in sun or shade.

V. rupestris.—Considerable confusion rages about this name. If we are to take Mr. Farrar as the authority where the nomenclature of rock plants is concerned, the proper name for this splendid and useful decoration is *V. Teucrium dubia*. It is also offered as *V. prostrata*, but this, it seems, is quite another plant, though somewhat resembling it. The plant we have in mind is a quite prostrate trailer, with small, dark, narrow foliage and masses of little spires crowded to their utmost capacity with small brilliant blue blossoms toward the end of May. The plant, when suited, is a tremendous spreader, and small things in its neighbourhood must be looked out for. There is a white-flowered form, and one known as *V. compacta*, which does not creep at all, but remains a neat, tidy little blue pool, very useful in situations where the flowing river of *V. rupestris* would not be permissible. All like a sunny situation and light soil. May and June.

V. saxatilis is a most engaging alpine Speedwell. A small thing but three or four inches high, but spreading into broad mats of little shoots clad in dark, small thick leaves, ending in a spray of bright azure blossoms, that are gone almost as soon as they appear. May be admitted to the most select company. I have a white form that

always, with me, blooms first. The blossoms of this white variety are less ephemeral than the blue. Both are choice. Late May.

V. spicata.—Too tall for the rock garden.

V. spuria (*V. amethystina*).—Rather more suited to the borders. Grows bushily to a height of eighteen inches, the stems clothed in hairy heart-shaped leaves and terminating in sprays of brilliant blue blossoms. May have a place in sunny out of the way places. June.

V. Teucrium (see *V. rupestris*).—Royal Blue is a handsome form, growing somewhat taller and covered in June with a mass of rich blue blossoms. *V. T. Trehani* is a form with yellow leaves, also attractive when bearing its charming burden of blue flowers, and when out of bloom as well. June.

VINCA.—The beloved Periwinkle has no place in the rock garden, but *Vinca herbacea* is a form that is far less rampant and quite useful in making a modest show where a green veiling for rocks is required. The blossoms are blue.

VIOLA (See Chapter VI).

VITTADENIA.—*V. triloba* (see *Erigeron mucronatus*).

WAHLENBERGIA.—A genus allied to *Edraianthus* with which I have had very little experience. They are true rock plants, small, low and tufted, and bear lovely blossoms in various tones of violet or blue. I have a number of kinds up from seed, and offered in this country are, *W. dalmatica, W. graminifolia, W. Kitaibeli, W. tasmanica* and *W. vincaeflora.* They are not difficult to raise from seed, but they all require choice, well-drained position on the rock garden in sun or light shade.

PLANTS FOR SPECIAL PURPOSES

Fifty Plants to Begin with in a Sunny Rock Garden

None of the following plants is at all difficult to grow and all those marked with an asterisk (*) may be easily raised from seed.

*Achillea serbica
Adonis vernalis
*Aethionema pulchellum
*Alyssum saxatile citrinum
Androsace Chumbyi
Anemone Pulsatilla
*Anthemis montana
*Aquilegia flabellata nana
*Arabis albida
*Arenaria montana
Aster alpinus
*Aubrietia (any var.)
Campanula garganica
Campanula muralis
Ceratostigma plumbaginoides
*Dianthus caesius
*Dianthus deltoides
*Dianthus neglectus
*Draba repens
*Erodium cheilanthifolium
*Erysimum pulchellum
*Geranium Endressi
*Gypsophila repens
*Helianthemum (any var.)
Iberis sempervirens Little Gem
Iris gracilipes
Iris pumila coerulea
*Lychnis alpina
*Myosotis alpestris
*Papaver alpinum
*Papaver nudicaule
Phlox amoena
Phlox subulata G. F. Wilson
Polemonium reptans
Potentilla alba
Primula Sieboldii
*Saponaria ocymoides
*Satureia montana
Saxifraga Macnabiana
Sedum Ewersii
Sedum Middendorfianum
Sempervivum arachnoideum
*Silene alpestris
*Silene Schafta
*Tunica saxifraga
Thymus Serpyllum albus
Veronica repens
Veronica rupestris
*Viola cornuta Papilio
*Viola gracilis

Fifty Plants for a Rock Garden in Shade

Those marked with * may be easily raised from seed.

Adonis vernalis
Allium Moly
Anemone hepatica (Hepatica triloba)
Anemone pennsylvanica
Anemone sylvestris
Aquilegia canadensis
*Arenaria balearica

APPENDIX

Asperula odorata
*Campanula carpatica
*Campanula rotundifolia
Cardamine pratensis
Chimaphila maculata
*Corydalis lutea
*Corydalis nobilis
Cypripedium parviflorum
Dentaria diphylla
Dicentra canadensis
Dicentra Cucularia
Dicentra eximia
Dodecatheon Meadia
Epimedium (any var.)
Funkia minor
Houstonia coerulea
Mertensia virginica
Mitchella repens
Mitella diphylla
*Myosotis palustris semperflorens
*Myosotis sylvatica
Omphalodes verna
Phlox divaricata
Phlox subulata Nelsoni
Podophyllum peltatum
Polygonatum biflorum
*Primula acaulis
*Primula denticulata
*Primula frondosa
*Primula japonica
Ramondia pyrenaica
Sanguinaria canadensis
Saxifraga umbrosa
Sedum ternatum
Shortia galacifolia
Silene pennsylvanica
Silene virginica
Thalictrum minus
Tiarella cordifolia
Trillium grandiflorum
Trillium erectum
Viola blanda
Viola canadensis

Rock Plants that Bloom in Late Summer and Autumn

Besides the plants whose normal time for flowering is the late summer or autumn, many early bloomers give a second display when the dews become heavy and the nights cool. Included in the following list is a selection of these.

Anthemis macedonica
Asperula cyananchica
Calamintha alpina
Callirhoe involucrata
Campanula carpatica
Campanula muralis
Campanula pulloides
Campanula rotundifolia
Ceratostigma plumbaginoides
Chrysanthemum arcticum
Coreopsis rosea
Corydalis lutea
Crocus, autumn species
Dianthus gallicus
Erigeron mucronatus
Erodium Manescavi
Geranium lancastriense
Geranium pratense
Geranium Wallichianum
Geum miniatum

Gypsophila repens
Lychnis diurna
Malvastrum coccineum
Mazus pumilio
Micromeria croatia
Nierembergia rivularis
Oenothera pumila
Papaver alpinum
Papaver nudicaule
Papaver rupifragum
Phlox subulata
Potentilla Tonguei
Primula acaulis
Primula denticulata
Primula japonica
Satureia montana
Saxifraga Fortunei
Sedum ibericum
Sedum Middendorfianum
Sedum Sieboldii
Sedum spectabilis
Thymus micans
Tunica Saxifraga
Viola, many varieties

Plants for the Joints of Stone Steps

A few varieties only should be planted in a flight of steps. Those marked * prefer shade or partial shade.

Antennaria dioica
Arenaria balearica
Arenaria caespitosa
Campanula pusilla
*Campanula rotundifolia
Cerastium arvense
Cerastium tomentosum
*Corydalis lutea
Dianthus Prichardii
Evonymus Kewensis
*Ferns—various
Linaria Cymbalaria
Linaria equitriloba
Linaria pilosa
Mazus pumilio
Sedum acre
Sedum dasyphyllum
*Silene pennsylvanica
Thymus Serpyllum and vars.
*Viola biflora
*Viola rotundifolia

Plants for Paved Paths

None but very close-creeping plants should be used in the joints of paved paths, except along the edges, where slightly taller things may be employed.

Antennaria dioica
Arenaria balearica
Arenaria caespitosa
Draba repens
Hutchinsia alpina
Leptinella scariosa
Linaria hepaticaefolia
Linaria pilosa
Mazus pumilio
Mentha Requieni (shade)
Thymus lanuginosus
Thymus Serpyllum album
Thymus Serpyllum coccineum
Veronica repens

APPENDIX

Plants for Dry Walls Facing South

Aethionema grandiflorum
Aethionema pulchellum
Alyssum argenteum
Alyssum saxatile
Cerastium tomentosum
Dianthus caesius
Dianthus deltoides
Dianthus suavis
Gypsophila repens
Helianthemum, in variety
Hyssopus officinalis
Iberis sempervirens
Lavender
Nepeta Mussini
Santolina incana
Saponaria ocymoides
Sedum acre
Sedum album
Sedum sarmentosum

Plants for Dry Walls in Shade

Campanula carpatica
Corydalis cheilanthefolia
Corydalis lutea
Ferns
Geranium Robertianum
Linaria Cymbalaria
Ramondia pyrenaica
Saxifraga ceratophylla
Smilacina bifolia

A FEW PLEASANT COMPANIONSHIPS

The opportunity for the charming association of plants in the rock garden is endless. The following combinations have been noted from time to time in my own garden.

THE COMBINATION	COLOUR SCHEME
Eranthis Hyemalis *interplanted with* Snowdrops	Yellow and white
Adonis vernalis *and* Crocus versicolor	Yellow and purple
Chionodoxa Luciliae *and* Viola lutea	Blue and yellow
Crocus Sieberi *under* Androsace primuloides	Amethyst and gray
Anemone pulsatilla *near* Draba repens	Purple and yellow
Phlox Stellaria *and* Tulipa Kaufmanniana	Lavender, white, and rose
Arabis alpina *and* Pulmonaria azurea	White and sky-blue
Arabis alpina rosea *and* Viola Lord Nelson	Blush and red-violet
Iris pumila coerulea *and* Viola lutea	Blue and yellow
Anchusa myosotidiflora *and* Alyssum saxatile citrinum	Blue and yellow
Tulipa sylvestris, Phlox divaricata *and* Foam Flower	Yellow, lavender, and white
Armeria caespitosa *and* Androsace coronopifolia	Pink and white
Linum alpinum *and* Androsace lanuginosa	Sky-blue and pink
Phlox subulata Nelsoni *and* Viola gracilis	White and purple
Linum alpinum *and* Papaver alpinum	Sky-blue and yellow, apricot, etc.
Iris gracilipes *and* coral-coloured Heuchera	Mauve and coral
Linum alpinum *and* Lychnis Legascae	Blue and bright pink
Linum alpinum *and* Alyssum serpyllifolium	Blue and yellow
Aubrietia Lavender *and* Viola lutea	Lavender and yellow
Lychnis Legascae *and* Lychnis pyrenaica alba	Rose and white
Aubrietia Dr. Mules *and* Erysimum pulchellum	Purple and yellow
Aubrietia Lavender *with* Alyssum citrinum	Lavender and pale yellow
Silene pennsylvanica *and* Phlox subulata G. F. Wilson	Pink and lavender
Arenaria montana *and* Aquilegia flabellata	White and gray
Papaver rupifragum *and* Linum perenne	Apricot and blue

APPENDIX

THE COMBINATION	COLOUR SCHEME
Anthemis montana *and* Dicentra eximia	Cream and gray and rose
Dianthus neglectus *and* Campanula muralis	Pink and violet
Dianthus deltoides *and* Veronica rupestris	Pink and blue
Geranium lancastriense *in front of* Iris gracilipes	Pink and mauve
Iberis gibraltarica *and* Tulipa Sprengeri	Pale lavender and scarlet
Papaver nudicaule *var.* Tangerine *and* Phlox subulata G. F. Wilson	Scarlet and lavender
Saxifraga Macnabiana *and* Androsace primuloides	White and pink
Cheiranthus Allioni *and* Viola cornuta Papilio	Orange and lavender
Veronica saxatilis *and* Gypsophila fratensis	Blue and pink
Yellow Sun Rose *and* Veronica rupestris	Yellow and blue
Geranium grandiflorum *and* Long-spurred white Columbines	Violet and white
Pink Sun Rose *and* Artemisia frigida	Pink and gray
Nierembergia rivularis *and* Ceratostigma plumbaginoides	White and blue
Phlox amoena *and* Potentilla alba	Rose gray and white
Veronica saxatilis *and* Gypsophila cerastoides	Blue and white

NURSERIES AND COLLECTORS

In order to anticipate inquiry as to where rock plants may be secured I give the following list of Nurseries and Collectors from whom material for the rock garden and wild garden may be obtained:

D. M. Andrews, Rockmont Nursery, Boulder, Colorado.
Rocky Mountain plants and shrubs, also seeds.

Bay State Nurseries, North Abington, Mass.
Rock plants, dwarf shrubs.

Bobbink and Atkins, Rutherford, N. J.
Rock plants, dwarf shrubs, and dwarf evergreens.

G. H. Chisholm, Tarrytown, N. Y.
Rock plants.

Dean Iris Gardens, Moneta, California.

Detmar Nurseries, Tarrytown, N. Y.
Rock plants and dwarf evergreens.

Herbert Durand, Bronxville, N. Y.
Native plants and shrubs.

R. & H. Farquhar, 6 South St., Boston, Mass.
Dwarf shrubs, Azaleas, conifers.

Bertrand Farr, Wyomissing Nurseries, Wyomissing, Pa.
Rock plants, dwarf shrubs, and conifers.

The Framingham Nurseries, Framingham, Mass.
Dwarf shrubs.

Edward Gillett, Southwick, Mass.
Rock plants, native plants, Orchids, and Trilliums.

Mrs. Fannie S. Heath, R1, Grand Forks, North Dakota. (Collector.)
Native plants of her neighbourhood.

Hicks Nurseries, Westbury, Long Island, N. Y.
Interesting dwarf shrubs and conifers.

Frederick Horsford, Charlotte, Vt.
Rock plants, native Orchids, Trilliums, etc.

Harlan Kelcey, Salem, Massachusetts.
Native plants and shrubs.

Logan Nursery, Logan, Philadelphia, Pa. Miss Mary Wright.
Rock plants, dwarf shrubs, etc.

W. E. Marshall & Co., 166 West 23d St., N. Y. City.
Rock plants, dwarf shrubs.

Mrs. C. S. McKinney, 159 Garfield Ave., Madison, N. J.
Dwarf Irises, species and varieties.

Mrs. Albert Obergfell, Sidney, Montana. (Collector.)
Native plants of her neighbourhood.

Palisades Nurseries, Sparkill, N. Y.
Rock plants.

Theodore Payne, 345 S. Main St., Los Angeles, California. (Collector.)
California native plants.

Carl Purdy, Ukiah, California.
Native plants of the California mountains, native Iris, native bulbs.

E. C. Robins, Pineola, Avery Co., N. C.
Native plants of the Blue Ridge.

Julius Roehrs, Rutherford, N. J.
Rock plants, dwarf shrubs, and conifers.

Miss Ethel Runner, Richlieu, Kentucky.
Native plants of her neighbourhood.

Ralph W. Shreve, Farmington, Arkansas. (Collector.)
Wild flowers of the Ozarks.

W. N. Suksdorf, Bingen, Washington. (Collector.)
Native plants.

Mrs. Susan Stoker, Cowichan Lake, British Columbia.
Seeds of the wild flowers of B. C.

Charles H. Totty, Madison, N. J.
Dwarf Irises.

"Wild Flowers," Maltby, Mich.
Native plants.

L. E. Williams, Exeter, N. H. (Collector.)
Native plants.

Wolcott Nurseries, Jackson, Mich.
Rock plants, Primulas, small shrubs.

THE END

INDEX

Abies, dwarf forms, 228
Acaena, 167; list of for rock garden, 245
Achillea, list of for rock garden, 245–246
Actaea alba, 246; rubra, 246
Adonis amurensis, 246; vernalis, 246
Aegopodium Podograria, 162, 247
Aethionema, soil and situation for, 247; list of for rock garden, 247
Ajuga reptans, 160; genevensis, 247
Alchemilla alpina, 247
Allium, 167; list of for rock garden, 248
Almond, flowering, 13, 42; pruning, 48
Alpine plants, misconception concerning, 174; sun-loving, 180; definition of, 207–208; planting, 210–214; general care, 215–225; propagation from seed, 145, etc., other methods, 221; winter protection, 222; soil for, 191, etc., list of, 245, etc.
Alpine Primula, 53, 68, etc.
Alsine laricifolia, 248; pinifolia, 248
Alyssum, 46; saxatile, 167; list of for rock garden, 248–249
Amelanchier canadensis, 39; botryapium, 40
Anagallis Monelli, 239; Phillipsii, 239
Anchusa myosotidiflora, 167, 249
Andromeda floribunda, 25, 203, 234; polifolia, 203, 228
Androsace, Chumbyi, 105, 175; culture of, 250; list of for rock garden, 250–251
Anemone, japonica, 34; canadensis, 165; Hepatica, 204; collecting, 251–252; list of native species for rock garden, 252–253; list of foreign species, 253–254
Anemonella thalictrifolia, 254
Annuals, unsuitable for rock garden, 239; suitable for rock garden, 239–241
Antennaria dioica, 106, 255; rosea, 255
Anthemis, list of for rock garden, 255
Anthyllis montana, 255
Antirrhinum, for rock garden, 255–256
Aquilegia, canadensis, 167; list of species for rock garden, 256–257
Arabis, 44, 46, etc.; alpina 167; list of species for rock garden, 257–258
Arborvitae, 9, 15; dwarf forms, 236
Arbutus, Trailing, 39, 197, 198, 279
Arctostaphylos Uva-Ursi, 228
Arenaria, caespitosa, 106; balearica, 106; list of for rock garden, 258
Arethusa bulbosa, 203
Arisaema triphyllum, 204, 258
Armeria, formosa, 167; list of species for rock garden, 259
Armstrong, Margaret, quoted, 117
Arnica montana, 259
Artemisia, list of for rock garden, 259–260
Asarum canadense, 204, 260
Asperula, odorata, 167; azurea setosa, 239; list of species for rock garden, 260–261
Asplenium, species growing in acid soil, 204, 205
Aspidium, 205
Aster, linariifolius, 204; list of for rock garden, 261
Aster, Upland, 204
Astragalus, species for rock garden, 261
Aubrietia, for rock gardens and borders, 261–262
Auricula, 53, 65–68; common names of, 66; Storries' New Giant, 67
Azaleas for acid soil, 203–204; for rock gardens, 228–229
Azalea, white swamp, 203; tall, 204; rose, 204

Baby Blue Eyes, 241
Baneberry, 246
Barberry, 229
Bearberry, 200, 228
Bear's-ears 66
Beds for seedlings 154; for acid soil lovers, 201
Bellflowers, peach-leaved, 143; list of for rock garden, 263–266
Bellis perennis, 262; rotundifolia, 262
Bellium minutum, 262; bellidioides, 262
Bellwort, 201, 334
Berberis, list of dwarf forms, 229; repens, 234; Aquifolium, 234
Bergamot, 38
Betula nana, 237
Birch, dwarf, 237; white, 19, 20
Bishop's-cap, 304
Bird's-foot-trefoil, 301
Bitter-root, 299
Bloodroot, 46, 59, 202, 317
Blue Bells, English, 103
Blue-eyed Grass, 330
Blue-eyed Mary, 308
Bluets, 198, 205

INDEX

Borago laxiflora, 262
Bowles, L. E., quoted, 125, etc.
Box, 9, 13; fragrance of, 21; care of, 22
Box Barberry, 229
Box Huckleberry, 231
Brodiaea, 118
Bulbous plants, 101–120; from seed, 115, 155; from the west, 115–120
Bronze Bells, 117
Bunchberry, 203
Bugleweed, 159, 160, 247
Butterfly Tulip, 119

Cactus, 262
Calamintha alpina, 262
Calandrinia umbellata, 262
Calico Bush, 204; see Kalmia latifolia
California Blue Bell, 241
California Poppy, miniature, 240
California Rose, 163
Callirhoe involucrata, 263
Calluna vulgaris, 229
Calochortus, various species tried, 119–120
Calopogon pulchellus, 203
Caltha leptosephala, 263; palustris, 263
Calypso bulbosa, 204
Calystegia pubescens, 163
Camomile, 255
Campanula, carpatica, 167; glomerata, 167; pusilla, 260; list of species for rock garden and borders, 263–266
Campion, see Lychnis
Candytuft, see Iberis
Cardamine pratensis fl. pl, 267
Carpenter's-herb, 160
Cassandra, see Chamaedaphne
Cassiope hypnoides, 203
Catananche coerulea, 267
Cat-mint, see Nepeta
Ceanothus americanus, 237
Cedar, 9, 11, 12; red, 17, 232; blue Virginian, 18
Centranthus ruber, 267
Cerastium arvense, 165, 267; tomentosum, 167, 267
Ceratostigma plumbaginoides, 267
Chaenomeles japonica, 44, 45; Maulii, 45
Chamaecyparis, picifera squarrosa, 13, 16, 230; picifera argentea 16; list of dwarf forms, 229–230
Chamaedaphne calyculata, 26, 203, 230
Chaucer, quoted, 63, etc.
Cheiranthus, Allioni 97; list of for rock garden, 267–268
Checkerberry, 203, 9
Cherry trees, 38; Japanese weeping, 41
Chervil, 4
Chickweed, field, 165
Chimaphila maculata, 204, 268; umbellata, 204, 269
Chiogenes hispida, 203
Chionodoxa, 103
Chionophila Jamesii, 268
Chives, 4
Christmas Rose, 35
Chrysanthemum, 34; arcticum, 269
Chrysogonum virginianum, 269
Cinquefoil, see Potentilla
Clay, effect on rock plants, 192
Claytonia virginica, 204, 269
Clematis, from seed, 155
Clethra alnifolia, 203
Clintonia borealis, 203, 269; umbellulata, 203, 269
Coggswellia montana, 269
Cold Frames, 148
Columbine, 178, 202, 256, etc.
Collectors, list of, 344–345
Conifers, see Chapter 2, low-growing forms, 228, etc.
Convolvulus, species for rock garden, 269
Coptis trifoliata, 203
Coreopsis rosea, 269
Cornelian Cherry, 43
Cornus, Mas, 43; alba, 49; canadensis, 203, 269
Coronilla, species for rock garden, 270; varia, 164
Correvon, M. quoted, 139–140, etc.
Corydalis cheilanthefolia 46; lutea 166; glauca 167; list of species for rock garden, 270–271
Corylopsis pauciflora 43; spicata 43
Cotoneaster, evergreen species, 230; deciduous, 237
Cowberry, 203, 236
Cowslips, 50, 53, 55, 59, 63; fragrance of, 60; balls, 62; old fashioned kinds 60; double 62; late-flowering 67; French 66
Crab Apple, 12, 42–43
Crane's-bill, see Geranium
Creeping Charlie, 15
Creeping Jenny, 159
Creeping Snowberry, 203
Cream Cups, 241
Crocus, Imperati, 32, 37, 104; Tommassinianus, 32, 104, 105; Sieberi, 32, 104, 105; various species for rock garden, 104–105; ground-cover for, 105–106; autumn species, 34, 106
Crowberry, 231
Crown Vetch, 164
Crucianella stylosa, 165
Cryptomeria, 11
Cup Flower, 306
Cuckoo-pint, 207
Cupressus, 11, 161; see Chamaecyparis
Cupidone, 267

INDEX

Currant, flowering, 38
Cydonia, see Chaenomeles
Cypress, 9; see Chamaecyparis
Cypripedium acaule, 203; candidum, 204; parviflorum 205; pubescens 205; spectabilis, 205; list of for rock garden 271–272
Cytisus, see Genista

Daffodils, 20, 28, 38, 40, 42, 44; expensive sorts 45; inexpensive kinds, 46; miniature sorts 109–110
Dalibarda repens, 203, 272
Daphne, Mezereum, 32, 37, 38, 237; cneorum, 230; for rock garden, 237
Dead Nettle, 159, 161
Delphinium, species for Rock Garden, 272
Dendrium buxifolium, 234
Devil's Paint-brush 165
Dianthus Armeria 167; deltoides, 167; gallicus, 167; list of, for rock garden 272–276
Diapensia lapponica, 203
Dicentra, cucullaria 205; list of kinds for rock garden, 276
Digitalis, in rock garden, 277
Dodecatheon, 277
Dogwood, 12, 201; pink, 13, see Cornus
Dog-tooth-violet, 115
Doronicum, 277
Draba, list of species for rock garden, 277–278
Dracocephalum for rock garden, 278
Drainage, 183, 191, 192, 194, etc.
Drosera filiformis, 203
Dryas, list of, for the rock garden, 278–279
Dry Wall, plants for, 204
Dryopteris simulata, 341.
Dusty Miller, 66
Dutchman's-breeches, 46, 59, 179, 276

Edelweiss, 298
Elm, 9, 10
Empetrum nigrum, 203, 231
Epigaea repens, 203, 279
Epilobium nummularifolium, 279
Epimedium, kinds for rock garden, 279
Eranthis hyemalis, 279
Erica vulgaris, 229; carnea, 231
Erigeron, list of for rock garden, 279–280
Erinus alpinus, 280
Erodiums, collecting, 121, 130; tender sorts, 131; kinds suitable for rock garden, 131–133
Erodium corsicum, 131; chamaedryoides, 131; Manescavi, 131; cheilanthifolium, 131; trichomanifolium, 132; supracanum 132; macradenum, 132; Guiccardi, 132; chrysanthum, 132; amanum, 133; guttatum, 133
Erysimum, ochroleucum, 268, linifolium, 268; list of for rock garden, 281
Erythronium, Western species for Eastern gardens, 116–117; americanum, 205
Eschscholtzia californicum, 144; tenuifolia, 240; caespitosa, 240
Euphorbia, Cyparissias, 163; list of for rock garden, 281
Evelyn, John, quoted, 23, etc.
Evening Primrose, 306
Evergreens, 8, etc.; in the snow, 9; broad-leaved, 9, 45, etc.; winter colour of, 9, 16; simple grouping of, 11, 13; "golden," 15; list of for rock garden, 228–236
Evergreen Ground-covers, 26–27
Evonimus radicans, 29; radicans Kewensis, 231

Fairy Lantern, 119
False-teeth-bush, 26, 230
Farrar, Reginald, quoted, 70, 118, 186, 225, etc.
Feate of Gardening, quoted, 28
Ferns, 46, 59, 90, 178; growing in acid soil, 203, 204–205
Festuca glauca, 281
Fir, white, 228; dwarf Balsam, 228
Flax, 142, 143, 300
Flowers, earliest, 32, 34, etc.; latest, 34, etc.
Foam Flower, 283
Forget-me-not, 46, 73, 305
Forsythia, 44; pruning, 48
Foundation planting, 10
Foxglove, 277
Fragrance, of Box, 21; of spring, 38; of Mexereon, 37; of cowslips, 60; of Violets, 88, etc.
Fritillaria meleagris, 114; list of western species, 117–118
Funkia minor, 281

Galanthus nivalis, 102; Elwesii, 102; other species, 102
Galax aphylla, 203, 281
Galigaskins, 60
Garden Plague, 163
Gardens, winter, see chapter 2; spring, see chapter 3; Mrs. Constable's, 12; Mrs. Chandler's, 79; of Crow's Nest, 90; Mary Wright's, 99; Mr. Adams', 99; Mr. Lown's, 102, 283, etc.
Gaultheria procumbens, 282
Gay Wings, 205, 314
Gaylussacia brachycera, 203, 231
Genista, list of, for rock garden, 282
Gentiana, notes on, 282–285
Gentian, fringed, 201, 284, etc.
Gerade, quoted, 86, etc.

INDEX

Geranium, maculatum, 123; robertianum, 123, 167; Fremontii, 124; pretense, 124; armenum, 125; ibericum, 125; sylvaticum, 125; tuberosum, 125, 167; sanguinium, 126, 167; grandiflorum, 126; Endressi, 126–127; argenteum, 127; cinereum, 128; lancastriense, 128; Traversii, 129; sessiliflorum, 129; Wallichianum, 129
Geraniums, collecting wild, 121; uses of, 122; border kinds, 126; alpine species, 123, 127–128, Western species, 124; from seed, 130
Geum, list of, for rock garden, 285–286
Gill-over-the-ground, 159
Glechoma hederacea, 159, etc.
Globe Flower, American, 205, 334
Globe Tulip, 119, 120
Globularia, list of, for rock garden, 286, 287
Goodyera pubescens, 205, 286
Gold-thread, 203
Goutweed, 162, 247
Gramnanthes dichotoma, 240
Grape Hyacinth, 44, 52, 107
Grass, as a weed, 219; Blue Fescue, 281
Grass of Parnassus, 309
Ground Ivy, 158, 159, 160
Ground Pine, 8
Gypsophila, libanotica, 167; muralis, 240; list of species for rock garden, 286

Habenaria, various species, 203, 287
Haberlea rhodopensis, 287
Hamamelis, mollis, 36; japonica 36; arborea 36; vernalis, 36
Harebell, 266
Hawkweed, 165
Heather, 231
Hedera Helix minima, 231
Hedges, of Yew, 13; of Cedar, 17; of Box, 21; of Hemlock, 18
Hedge Mustard, see Erysimum
Helianthemum, list of, for rock garden, 287–288
Helonias bullata, 288
Helxine Soleirolii, 164, 288
Hemlock, 9, 10, 11, 18, 201
Hepatica, 31, 37, 40, 46, 59, 204, see Anemone
Hen-and-chickens, 159
Herb Robert, 123, 124
Heron's-bill, see Erodium
Hieracium aurantiacum, 165
Higginson, Thomas Wentworth, quoted, 41
Holly, English, 23; native 24
Holmes, Dr., quoted, 21
Honeysuckle, winter, 13; Twin, 32; bush, 44
Hose-in-hose, 58, 60, 61, 62
Housewife's border, 4
Houstonia coerulea, 205, 288; serpyllifolia, 289
Huckleberry, 201; Box, 203, 231
Humus, 193
Hutchinsia alpina, 289
Hyacinth, 38, 44, 107, etc.; wood, 103
Hyacinthus, amethystinus, 108; azureus, 108
Hypericum reptans, 106; Buckleyi, 237; list of species for rock garden 289–290
Hypoxis hirsuta, 205

Iberis, list of kinds for rock garden, 290
Ilex, crenata 23; opaca, 24; glabra, 24; Aquifolium, 23; latifolia, 23
Ionopsidium acaule, 240
Iris, reticulata 114; verna, 198, 203; prismatica, 205; exotic species and varieties for the rock garden, 290–294; American species, 294–297
Ivy, English 29; dwarf, 231

Jackanapes-on-horseback, 60
Jack-in-the-green, 56, 84
Jack-in-the-pulpit, 204, 258
Jacob's-ladder, see Polemonium
Japanese Quince, 44, 48
Jasmine, naked, 32, 35, 48, 102
Jasminum nudiflorum, 35
Jeffersonia diphylla, 297
Jekyll, Miss, quoted, 89
Jerusalem Cowslip, 316
Johnny-jump-up 33, 86, 87, 92, 98–100; names of, 98; collecting, 99
Jonquil, silver, 110
Joy-of-the-ground, 28
Juniper, 9, 16; chinese, 13, 232; Savin, 232
Juniperus, virginiana, 17, 232; Schotti, 18; chinensis, 18, 232; Pfitzeriana, 18; sabina, 18, 232; list of low-growing sorts for the rock garden, 231–232

Kalmia, angustifolia, 203, 232; glauca, 203, 232; latifolia, 204; polifolia 232; microphylla, 232
Kaulfussia amelloides, 240
Kenilworth Ivy, 184
Kerria japonica, pruning 48

Labrador Tea, see Ledum
Lady Fern, 206
Lady's Mantle, 247
Lady's Slipper, yellow, 205, 271; white, 204; showy, 205
Lady's Smock, 267
Lady's Tresses, 205
Lambkill, 9, 232

INDEX

Lamium maculatum, 161
Lathyrus, species for rock garden, 297
Laurel, mountain, 9, 25, 203; sheep, 203, 252; swamp, 232, pale, 203
Lavender, 38, 232, 298
Lavendula, 232, 298
Lavender Cotton, 318
Leaf-mould, 193, etc.
Leather-leaf, 26, 203
Leaves, as winter covering, 223
Ledum groenlandicum, 204
Leiophyllum buxifolium, 26, 204, 234; prostratum 234
Leontopodium alpinum, 298
Leptinella scariosa 298
Leptosiphon hybridus, 240
Leucocrinum montanum, 298
Leucojum vernum, 114
Leucothoe Catesbaei, 25, 205
Lewisia, trials of in rock garden, 298
Lilium, acid-soil species, 205; for rock garden, 299
Lily, Madonna 143; Wood, 205; Meadow, 205; Turk's-cap, 205
Lime, 194
Limnanthes Douglasi, 240
Linaria, species for rock garden, 299
Ling, 229
Linnaea borealis, 204, 300
Linum, perenne, 142, 166; selection for rock garden, 300
Liparis lilifolia, 205
Lippia repens, 165, 301
Listera convallarioides, 205
Lithospermum, species for rock garden 301
Liverwort, see Hepatica
Loam, 192
London Pride, see Saxifraga umbrosa
Lonicera, fragrantissima, 13, 44; Standishii, 44; nitida 234
Loosestrife, creeping 162
Lotus corniculatus, 301
Lowell, J. R., quoted, 9
Lown, Clarence, quoted, 283, etc.
Lovegrove, see Nemophila
Lungwort, see Pulmonaria
Lupinus, American species, 301
Lychnis, species for rock garden, 302
Lygodium palmatum 204
Lysimachia Nummularia, 162, 302

Madwort, see Alyssum
Magnolias in spring garden, 43, etc.
Mahonia, Aquifolium, 26, 234; repens, 26, 234
Maianthemum canadensis, 205
Maiden-hair fern, 205
Maiden-hair spleenwort, 206
Mallow, Poppy, see Callirhoe
Malus, species and varieties in spring garden, 42–43
Malvastrum coccineum, 302
Manure, use of in rock garden, 193, 223
Marigold, Marsh, 263
Mariposa Lily, 119
Marjoram 4, 38
Marsh Rosemary, 203, 228
Mary's Meadow, quoted, 60, 61
May Apple, 313
Mayflower, Canada, 205
Mazus rugosus, 167; Pumilio, 302
Meadow Rue, see Thalictrum
Meadow Beauty, see Rhexia
Meadow Foam, 240
Meconopsis, 303
Meg-many-feet, 159, 164
Mentha Requieni, 303
Meridith, L. B., quoted, 72, 187
Mertensia, virginica, 41, 46; various species for rock garden, 303–304
Mesembryanthemum tricolor, 241
Mezereon, 33, 37
Micromeria croatia, 304
Milkwort, see Polygala
Mimulus, moschatus, 240; alpinus, 304
Mitchella repens, 205, 304
Mitella diphylla, 304
Mitford, Mary quoted, 51
Mitrewort, see Mitella
Moccasin Flower, yellow 105, pink, 198, 200
Moneses uniflora, 205, 316
Moneywort, 162, 302
Montia parviflora, 304
Moorwort, 203
Mother-of-thousands, 159
Mountain Cranberry, 236
Mountain Fetter-bush, 203
Mountain Lover, 234
Mountain Plants, characteristics of, 70, 207, etc.
Muehlenbeckia nana, 234
Muir, John, quoted, 119, 179
Mullein, 166, 335
Muscari, botryoides, 107; Heavenly Blue, 107, racemosum, 107
Musk, 240, 304
Myosotis, species for the rock garden, 306

Names of plants, significant, 159, etc.
Narcissus, miniature species for the rock garden, 108–110; see Daffodils
Nature, help from, 178–179, etc.
Native Plants, Violets, 90, etc; shrubs, 24–26, etc.; Geraniums, 123–124; bulbous, 119, etc.; Primroses, 71; Aquilegias, 256, etc.; Anemones, 252; Alliums, 248; Erigerons, 279; Drabas, 278; Iris, 294–297; Lewisias, 298; Lupines, 300;

Mertensias, 303; Pentstemons, 309; Phloxes, 310–313; Polemoniums, 313; Pyrola, 316; Sedums, 325; Silenes, 328 Trilliums, 333, etc., etc., great resources in, 5–6; how to obtain, 6–7; sanctuary for, 201–202; growing in acid soil, 203–206
Nemophila insignis, 241
Nepeta Mussini, 306, etc.
New Jersey Tea, 237
Nierembergia rivularis, 306
Nurseries and Collectors, list of, 344–345

Oak Tree, 10
Oconee Bells, 205
Oenothera, speciosa, 165; pumila, 167; species for rock garden, 307
Omphalodes, linifolia, 241; species for rock garden, 307–308
Onoclea sensibilis, 206
Onosoma tauricum, 308
Opuntia vulgaris, 308
Orchis spectabilis, 204
Orchis, purple-hooded, 205; white-fringed 206; yellow-fringed, 206
Orchid, rattlesnake, 205; Little Brown, 205
Oregon Grape, see Mahonia Aquifolia
Origanum, species for the rock garden, 308
Ornithogalum umbellatum, 308
Orobus, 309
Osmunda, cinnamomea, 204; regalis, 204; Claytoniana, 206
Oxalis acetisella, 204
Oxlip, 53, 63
Oxytropis, 309

Pachystima Canbyi, 234
Pachysandra terminalis, 27
Paeonia Moutan, 237
Painted Trillium, see T. erectum
Pansies, 87
Pansy-Violets, 87, 96
Papaver, nudicaule, 137; forms of, 138; alpinum, 138–140; Kerneri, 140; pyrenaicum, 140; Burseri, 140; tauricolum, 140; from Thibet, 141; rupifragum, 141, 142, 166; ruporient, 143; pilo sun, 143; atlanticum, 143; caucasicum, 143; californicum, 143; arenarium, 144; libanoticum, 144; triniaefolium, 144
"Paradici in Sole," 60, etc.
Parkinson, John, quoted, 62, 72, etc.
Parnassia caroliniana, 203, 309
Parsley, 4
Partridge Berry, 201, 304
Parrya Menziesii, 309
Pasque Flower, 253
Path, Primrose, 4, 35, 40, 45, 54, 74, 77, 83, 84, etc.
Paths, in rock garden, 183–184, 340, 341
Peach Trees, 2
Pentstemon, 6; list of, for rock garden. 309–310
Periwinkle, 27, 32, 90, 337, etc.
Phacelia campanulata 241
Philadelphus microphyllus, 237
Phlox, dwarf forms for rock garden, 310–313
Picea, list of low-growing forms, 233–234
Pieris floribunda, 234; see Andromeda
Pimpernel, see Anagallis
Pine, 9, 19; Mugho, 11, 235; Ground, 8; Bandaisho, 11; Austrian, 20; Swiss Mountain, 235; Japanese Umbrella, 235
Pink, Wild, 179, etc.; species of for rock garden, 272–276; Maiden, 274
Pinus, low-growing forms, 235
Pinxter Flower, 204
Pipsissewa, 269
Pitcher-plant, 204
Plants, unfit for rock garden, 156; requiring acid soil, 203–206; with woolly leaves, 211; list of for rock garden, 245–345; for sunny rock garden, 338; for shaded rock garden, 338–339; for late bloom, 339, 340; for joints in steps, 340; for paved paths, 340; for dry walls, 341; in pleasant association, 343
Planting alpines and rock plants, 210–214
Platystemon californicus, 241
Plum, purple-leafed, 41
Plumbago, 267
Podophyllum peltatum, 313
Pogonia ophioglossoides, 204
Polemonium, species for rock garden, 313–314
Polygala, paucifolia, 205; species for rock garden, 314
Polygonum, 314
Polygonatum, 314
Polypodium polypodioides, 204
Polyanthus, 59, 60, 64; origin of, 64; various kinds, 64–65; division, 65
Pool, in rock garden, 226
Poppy, Spanish, 132, 142, etc.; Shirley, 135; oriental, 135; collecting, 135, etc.; in old garden, 136; Iceland, 137–138; Alpine, 138, 139, 180; in rock garden 137
Poppy, California, dwarf species, 240
Poppy, Mallow, see Callirhoe
Potentilla, fruticosa, 237; species for rock garden, 314, 315
Prickley Pear, see Opuntia
Primerole, 54
Primrose, 32, 35, 40, 50, 52; from seed, 53; fall-flowering, 67, 84; English, 53, 54,

55; Harbinger, 55; blue, 55; green, 55; Jack-in-the-green, 56; double, 56, 58; cultivation of, 58; division, 79; Bunch-flowered, 64; alpine 69–70; native, 71–72; Bird's eye, 72–73; Japanese, 74; Bog, 75
Primrose Path, see Paths
Primula acaulis, 55; veris, 59; suaviolens, 61; elatior, 63; auricula, 65; japonica, 67, 77, 79; denticulata, 67, 76, 83; calycina, 69; viscosa, 70; marginata, 71; suffruticosa, 72; Parryi, 72; farinosa, 73, 83; Sieboldii, 73; frondosa, 73; cortusoides, 73, 83; amoena, 74; cashmeriana, 77; capitata, 77, 83; pulverulenta, 79; Bulleyana, 80; Beesiana, 80–83; Cockburniana, 80–83; Poissoni, 82; Forrestii, 84; involucrata, 84; Littoniana, 84, luteola, 84; rosea, 84; sikkimensis, 84; various hybrids, 80, 82
Prince's-pine, 204
Pruning spring-flowering shrubs, 47
Prunus, species in spring garden, 41–42; Besseyi, 237
Propagation, of Primulas, 59, 65; of plants from seed, 145, etc.; by division, etc., 221–222
Puccoon, see Sanguinaria
Pulmonaria, azurea, 46, 316; angustifolia, 316, saccharata, 316
Purdy, Carl, quoted, 119, etc.
Puschkinia, 103
Pussy's-ears, 120
Pyrola, chlorantha, 204; uliginosa, 204; elliptica, 205; rotundifolia, 205; species for rock garden, 316
Pyrus, see Malus
Pyxidanthera barbulata, 204, 317
Pyxie, 204, 317

Quaker Ladies, 205, 288

Ragged Robin, see Lychnis
Ramondia pyrenaica, 317
Ranunculus repens, 164; species for rock garden, 317
Rea, John, quoted, 55, 62
Retinispora, 11; filifera aurea, 16, 230; see Chamaecyparis
Rhexia virginica, 205
Rhodora canadensis, 40, 41, 204, 237
Rhododendron, 25
Robinson, William, quoted, 56, 118, etc.
Robin-run-in-the-hedge, 159
Rock Cress, see Arabis
Rockery, 176
Rock, best type to use, 185–186
Rock Gardens, alphabetical list of plants suitable for, 245–345; site for, 177, 179–182; paths in, 183, 184; material for building, 185–186; building, 186–189; soil for 192, etc.; natural, 178, 189–190; shrubs for, 225; annuals for, 238
Rock Gardens, 171, etc., in England, 173, Mr. Farrar's, 173; at Friar Park, 163; Mr. Lown's, 102, etc.
Rock Plants, definition of, 207–208; where to obtain, 344–345
Rocky Mountain Grape, see Mahonia
Rose Campion, see Lychnis dioica
Roving Charlie, 159
Rue Anemona, 254, 332
Ruta patavina, 317

Saffron, see Crocus sativus
St. Johnswort, see Hypericum
Salad, herbs for, 4
Salix discolor, 39; retusa, 237
Sand, use of in rock garden, 191, 194, etc.
Sand Cherry, 237
Sand Lily 298
Sand Myrtle 26, 234
Sandwort, see Arenaria
Sanguinaria canadensis, 317–318
Santolina, 318
Sanvitalia procumbens, 241
Saponaria, calabrica, 241; species for rock garden, 318
Sarracenia purpurea, 204
Satureia, list of for rock garden, 318
Savin, see Juniperus Sabina
Savory, 4, 318
Saxifraga, Cymbalaria, 241; characteristics of, 319; list of species for rock garden, 318–320; from seed, 320–321
Scabiosa pterocephala, 321
Sciadopitys, verticilata, 235
Scilla, siberica, 102; bifolia, 102; festalis, 103; nutans, 103; campanulata, 103; hispanica, 103
Scillas, 28, 37, 43, 45, 90, 101, etc.
Scutellaria hastata, 165; species for rock garden, 321
Sedding, John, quoted, 61
Sedum, pulchellum, 110; ibericum, 167; acre, 167; album, 167; sarmentosum, 167; coeruleum, 241; list of exotic species, 322–325; list of native species, 325–327
Seed, sowing in cold frame, 147–151; table of germination, 152; watering, 154; time to sow, 155; winter treatment, 153, 154
Seedlings, beds for, 154
Sempervivum, list of for rock garden, 327–328
Sensitive Fern, see Onoclea
Shadblow, 38, 39, 201
Shade, rock plants for, 388
Shafer, Sara, quoted, 19
Shortia galacifolia, 328

INDEX

Shooting Star, 277
Shrubs for rock garden, 235, etc.
Silene pennsylvanica, 179, 205; list of species for rock garden, 328–329
Sisyrinchium, list of species for rock garden, 330
Scull-cap, see Scutellaria
Smilicina, list of, for rock garden, 330
Snapdragon, 255
Snow, as an aid to germination, 153
Snow, value of evergreens in, 8–9
Snowberry, creeping, 203
Snowdrop, 28, 31, 32, 33, 35, 37, 39, 45, 54, 101–102
Snowflake, 114
Snow Glory, 103
Snow-in-summer, see Cerastium
Soapwort, see Saponaria
Soil, for rock garden, 191–196; drainage of 183, 194
Soil, acid, 196, etc., where found, 199–200, how to make, 200; plants growing naturally in, 203–206
Soldanella alpina, 330
Solomon's-seal, 314
Speedwell, see Veronica
Spicebush, 38, 40, 62, 201
Spiraea, Thunbergi, 44; crispifolia, 237; decumbens, 237
Spiranthes cernua, 205
Spleenwort, see Asplenium
Spring Beauty, 46, 201, 269
Spring Daisy, 333
Spring pictures, 40, 41, 44
Spruce, 9, 21; Norway, 10; blue, 11, 12; oriental 20; dwarf forms of, 233
Spurge, see Euphorbia
Squill, see scilla, striped, 103
Squirrel-corn, 276
Stachys corsica, 330
Star of Bethlehem, 167, 308
Star Flower, 205
Star Tulip, 120
Starwort, see Aster
Stellaria, holostea, 167, 331
Steps in rock garden, 184, 185; plants for, 340
Stitchwort, see Stellaria
Stone, for use in rock garden, 185–186
Stonecrop, see Sedum
Stylophorum diphyllum, 331
Sunrose, see Helianthemum
Sweet Briar, 38
Sweet Fern, 38
Sweet Pepper Bush, 203
Sweet Woodruff, 260
Symphyandra, list of species for rock garden, 331
Synthyris reniformis, 331; rotundifolia, 331

Tanner's-apron 66
Tarragon, 4
Taxus baccata, 13, 14; baccata repandens, 13; baccata erecta, 14; baccata fastigiata, 15; dwarf forms of, 235–236
Teucrium chamaedrys, 332
Thalictrum, anemonoides, 254; minus, 332; dioicum 332
Thoreau, quoted, 8, 18, 19, etc.
Thrift, see Armeria
Thuja, occidentalis, 15; low-growing forms of, 236
Thyme, 4, etc.
Thymus, list of kinds for rock garden, 332
Tiarella cordifolia, 332; unifoliata, 333
Toadflax, see Linaria
Top-dressing, 215–216
Townsendia escarpa, 333
Trientalis americana, 205, 333
Trillium undulatum, 204; grandiflorum 205; list of species for rock garden, 333–334
Trollius laxus, 205, 334
Tsuga canadensis, 18
Tunica Saxifraga, 166, 334
Tulipa, Kaufmaniana, 45; sylvestris, 45; species for use in rock garden, 112–114
Tufa, 185
Tulips, wild species, 111; British, 114
Twinflower, 300
Twinleaf, 297

Umbrella Pine, 235
Uvularia grandiflora, 334

Vaccineum, pennsylvanicum, 204; Vitis-Idaea, 204, 206; buxifolium,231
Valeriana, species for rock garden, 334–335
Valerian, 267, 334
Venus Navelwort, 241
Verbascum phoenecium, 166, 335
Verbena, 335
Veronica, repens, 106, 184; list of for rock garden, 335–337
Viburnum Carlesii, 38, 237
Vinca minor, 27, 29; alba, 29, herbacea, 337
Viola, papilio, 32; blanda, 37, 46, 90; odorata, 44, 46, 88; cultivation of, 88–89; rotundifolia, 46, 94; cornuta, 46, 87, 96; varieties of, 98; canadensis, 90, 91; septentrionalis, 91; rugulosa 92; pedata 92, 93, 94; pedatafida, 94; chrysantha, 94; glabella, 94; biflora, 95; ocellata, 95; elatior, 95; canina, 96; arenaria rosea, 96; luteas, 97; gracilis, 97; boshiaca 97; nigra, 99
Violet Cress, 240
Violets, sweet white, 37, 90; sweet hardy,

44, 46, 88; Pansy-violet 87, 96–97; various white, 91; Bird's-foot, 19, 81, 92; yellow, 94; native, where to obtain, 95
Violet, Dog-tooth, see Erythronium
Virginia Cowslip, see Pulmonaria

Wahlenbergia, species for rock garden, 337
Wake Robin, see Trillium
Walls, dry, list of plants for, 331
Wallflowers, 33, 97
Wandflower, 203
Wandering Sailor, 159
Weeding, 219–220
Weeds, 156; in rock garden, 219
Western Plants, see Native Plants
Wild Celery, 269
Wild Ginger, 260
Wildflower Sanctuary, 201–202
Windflower, see Anemone
Winter Aconite, 32, 37, 54, 297
Winterberry, 24
Wintergreen, 8, 9, 201, 269; aromatic, 262
Winter bouquets, 48
Winter Green, 8, etc.
Winter Picture, 37
Witch Hazels. Asiatic, 36–37
Wolcott, Mrs. quoted, 83–84, etc.
Woodsia ilvensis, 206, obtusa, 206
Woodwardia ariolata, 204
Woolly-leafed Plants, 211
Woodland, 200, etc.

Yarrow, 245
Yew, 9, 11; color of, 13; native, 14, 236; Japanese, 13–14, 236; canadian, 236; English, 13, 14, 235; Irish, 235